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September 1956




BRITISH ENTOMOLOGY;
BEING
ILLUSTRATIONS AND DESCRIPTIONS
OF
THE GENERA OF INSECTS
FOUND IN
GREAT BRITAIN AND IRELAND:
CONTAINING
COLOURED FIGURES FROM NATURE
OF THE MOST RARE AND BEAUTIFUL SPECIES,
AND IN MANY INSTANCES
OF THE PLANTS UPON WHICH THEY ARE FOUND.

BY JOHN CURTIS, F.L.S.

HONORARY MEMBER OF THE ASHMOLEAN SOCIETY OF OXFORD,
OF THE IMPERIAL AND ROYAL ACADEMY OF FLORENCE,
OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, ETC.

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P R E F A C E.

AFTER so many years spent in the production of this work, to enter into any explanation of its objects or of its usefulness may appear to many unnecessary, especially to those fellow-travellers who have accompanied me on my route; but in order that the former may not be misunderstood nor the latter overlooked, by those less intimately acquainted with the subject, it has been thought advisable to offer a few remarks on those heads, as well as to give an account of its origin and progress.

Some years before peace opened to this country the stores of the Continent of Europe, I had studied and admired the classical “*Genera crustaceorum et insectorum*” of Latreille, the utility of which was so manifest, that a translation of it was suggested by several talented scientific men connected with the “Entomological Society of Norwich;” this first led me to consider the best means of supplying a work which might be equally useful to my fellow-labourers at home, and the result was a determination of preparing for the press an “*Illustrated Genera of Insects*.” After a period of several years, during which I never lost any opportunity of adding to my materials, I found them increase so rapidly, that it appeared necessary to confine myself to the “*Genera of British Insects*;” with this view I took immediate steps for the publication of my work, which commenced on New-year’s day, 1824.

That the investigation of Genera must be of the first importance cannot be denied, for without a knowledge of such groups, it is impossible for any one to gain a correct knowledge of species; as well might a person expect to be able to write, before he had learned the first rudiments of a language, or to solve a problem, being ignorant of the principles of mathematics. If this be admitted, it is unnecessary to dwell much upon the importance of having Genera *correctly* investigated and described. This has been attempted in the present undertaking, and although I have selected the works of my

lamented friend Latreille as a model, Nature has been my Guide; for with the exception of some of the caterpillars, living examples of which it was impossible to obtain, and a very few of the dissections, every figure has been drawn from the life or from preserved specimens, and the descriptions have been taken from actual investigations of the various parts of the animals.

Desirable as it seemed to be that a work on Genera should be offered to the public, it appears rather strange that one should not have been earlier attempted, especially as the celebrated author of the "Natural History of Selborne" observed fifty years since, that "nothing would recommend Entomology more, than some neat plates, that should well express the *generic distinctions* of insects according to Linnæus."

In following up this object I have not confined myself to a close investigation of one set of characters, being convinced that a truly philosophic System must be based on all that are available, and which consequently must be derived from various sources: in this conclusion I am borne out by considering the result of the opposite plan pursued by the most learned men who have written upon the subject; for instance, Linnæus depended upon the antennæ; Fabricius upon the organs of manducation; Geoffroy upon the tarsi and antennæ; Jurine upon the wings; each adopting circumscribed and artificial instead of general features for his basis, without sufficiently regarding the value of others as secondary characters*: but surely it is a fallacy to suppose that one set of characters is to be employed almost to the exclusion of all others, although it is not to be denied that in different Orders their value varies essentially. To illustrate this position the Order Coleoptera may be taken; the leading groups I consider, such as Latreille's five principal *Sections*, may be characterized, with modifications, by the structure of the tarsi; the *families* of the same author are best identified by the trophi; the antennæ will distinguish *genera*, such as my views are of them; texture and sculpture ought to be the leading features of *species*; and colour seems to be the eva-

* It is true that Fabricius and Jurine have noticed other characters, but it must be inferred from their laconic and superficial descriptions, that little importance was attached to them.

nescent indication of *varieties*. In the present work therefore nothing has been neglected which it appeared would be useful to enable the student to study the structure and affinities of the smallest, as well as the larger groups of every Order, by a consideration of their various parts.

In the progress of my engagement I eventually found that more had been undertaken than I should have time or power to perform; I was therefore again compelled to circumscribe the range, although I did not alter the plan of the work. To effect this I have studied to give one or more examples, sometimes amounting to forty of each family, never losing sight of the Linnæan and Fabrician Genera, all of which, I believe, as far as native groups are concerned, have been illustrated, and also a very large portion of the Genera of other eminent authors, especially of Latreille, Olivier, Schönherr, Leach, Dejean, Gravenhorst, Kirby, Jurine, Hübner, Treitschke, Germar, Fallen, Meigen, and most of the new and remarkable types that have been discovered during the last twenty years, those having been preferred which it seemed might prove most acceptable to men of science who were at the time engaged in their investigation.

The assistance which the Entomologist has now at his command, was not within his reach even when this work was commenced: long before that period a printed Catalogue of Insects was found to be so indispensable that one was compiled, a portion of which was printed at the expense of Mr. Wilkin, and this I should have completed many years before my "Guide" appeared, had not one been promised from another quarter. In the perusal of the British Entomology therefore, it is requested that it may be borne in mind, that at its commencement there were no entomological periodicals nor any printed systematic Catalogues in circulation, which rendered it troublesome to communicate information and very difficult without an extensive library to ascertain species, as there was no regularity or harmony in nomenclature, and even in the boasted Cabinets of that time many of the largest families were "*rudis indigestaque moles*." One or two Families need only be here mentioned as examples:—the *Diplolepidæ* or *Chalcididæ*, which I always admired for their beauty, were neither arranged nor named in any cabinet I had seen,

which induced me to pay attention to those splendid little Fairy-forms ; and by occasionally illustrating a genus I cannot but congratulate myself, that it has probably led to the invaluable researches of a Haliday and a Walker : and if we compare the excellent Monograph on the Fossorial Hymenoptera by Mr. Shuckard with the "Systematic Catalogue," the superficial knowledge evinced in the latter work is very evident, although it was published only a few years previously.

In the desultory way in which the "British Entomology" was presented to the public, I was enabled every few weeks to offer my own, or the assistance of others on any genus it might be desirable to illustrate, which rendered this work an useful medium to the zealous man of science, and made it at the same time a record of entomological discoveries for a series of years. It was not however from choice but necessity that the work was not published in systematic order ; for my labours no doubt would have done me more credit as far as my scientific character was concerned, and I should have been free from the charge of many apparent incongruities to which I now must plead guilty, when pages written at remote periods are brought into *juxta* position, as they will be by the systematic arrangement of the work which is now proposed. There were also great difficulties to be overcome in the illustration of groups which had never before been investigated, when I was treading on ground as yet unexplored. I should also have saved myself incredible labour, which was incurred by going *per saltum* from one Order to another, for systematically, the investigation of one genus would naturally have led to information on the following groups. The insurmountable difficulty in a linear arrangement would have been to command the requisite materials, so that the work should appear with strict regularity, which could not have been accomplished even by the admission of well-known common species which were become of no interest, from the repeated investigations to which as old subjects they had been submitted ; and one great advantage undoubtedly attended the miscellaneous plan adopted, namely, that a *variety* of Orders was monthly presented to the public, which led to their immediate attention, and thus families became the favourites of En-

tomologists, which frequently had been up to that period totally neglected.

With a desire to make the work more complete, figures have been given of a very considerable number of Caterpillars, which can only be found in scarce and expensive foreign publications. The value also of correct figures of wild specimens of our *native Plants* to the entomologist, as well as the beauty which they must always give to a drawing, have made me very desirous to render this department as interesting and useful as I could, and through the generous contributions of numerous friends and my own exertions, I am happy to find that this portion of the work is not viewed with indifference, even by Botanists. It gave however latterly a serious check to my progress; for I had drawn so largely on the phenogamous plants, that if it had been my wish to continue the work, still giving figures of wild flowers, the numbers in future must have appeared at irregular and remote periods: thinking however that a further illustration of the Genera will prove acceptable, it is my intention to publish an Atlas* which will contain figures of all those *not illustrated* in this work, which with a Synopsis* of the species, will enable the scientific to study the subject in detail, and offer such specific and general information as may be required by the amateur: if I be not mistaken in the utility of these works, I trust that all who feel interested in Natural Science will step forward and support them. It will not be irrelevant to add, that I hope there are Entomologists who reside in countries producing types of form that are not inhabitants of our Islands, who will follow up my views by the illustration of *their* Genera, but on no account to traverse the same ground that I have done, by which course time would be lost and money wasted.

Having printed eight new Titles and as many separate Indexes in order that this work may be arranged systematically, it might not be thought unadvisable to give some hints upon that subject; but it appears to me, from the careful way in which the general Indexes have been framed, that with the assistance of the "Guide," any further instructions would be superfluous. It may be as well to observe, that the numbers at

* Vide the notices following the List of Subscribers.

the top of the plates, corresponding with the folios, show the consecutive order in which they were published, and the figures at the bottom of the plates and folios have been added to assist in the systematic arrangement; but unfortunately they rarely occur at present, as it was impossible to insert them until the entire arrangements were concluded. The *dates* at the bottom of the plates will determine when they, as well as the corresponding folios, were published; but it must be remembered that the articles were *written* one month, and frequently in the summer, two or three months in advance; this may exculpate me occasionally from an appearance of neglect, or possibly plagiarism, when similar subjects have been treated of, about the same periods by other writers. It is far from improbable that some of the dissections may not be free from error, for portions which are soft like the labium, will be frequently injured by the knife in the separation of minute parts, and under high powers the slightest perspective or foreshortening materially alters the outline of an object, so that compressed joints may appear too narrow and others too short. From the great care that has been taken, it is presumed such are rare exceptions; but it is important to be borne in mind, in order that such anomalies may not affect any theory based on the constancy of figure; for as far as my observations extend, there is no greater variation in the oral organs of individuals of the same species and sex, than there is in their antennæ or tarsi.

Notwithstanding all difficulties, and they have neither been few nor trifling, I have devoted myself most assiduously to my task during its progress, that no delay might take place in the accomplishment of an object which I considered would be for the benefit of science; and for sixteen years my Cabinets and Library have been open to my friends and scientific men one day in each week, in the hope that my favourite pursuit would be thereby advanced; and if they have gained information or derived advantage from this arrangement, I am well satisfied. This, however, caused so great a diminution of my time, that it would have taken upwards of twenty years to complete this work, without allowing any periods for relaxation, if I had not called in the aid of artists to assist me in the engravings: I wish it, however, to be understood that the plates of several of the early Volumes were for the greater

part, and those of the last and a considerable portion of the fifteenth were entirely, my own engraving, and all the others were corrected and finished by myself: the drawings also are the efforts of my pencil, and the articles and descriptions are my own writing; for any errors therefore I alone am accountable. That my labours have been well received by those who are impartial judges, I need only refer to the notices of Latreille, Burmeister, and many of my own countrymen.

Before taking leave of those who have been interested in my undertaking for so many years, I would remark, that without the support of the influential and wealthy, no illustrated work with numerous highly-finished engravings can, in this branch of Natural History, leave any reward for the labours of the Author, which are of course greatly increased when he combines the part of the Artist with his more legitimate duty; and if in the present instance I had been compelled to pay for the drawings and all the copper-plate engravings, it would have caused an additional expense of at least twenty shillings per volume to the purchaser.

It is not expected that the following volumes will afford general amusement, but that they will prove useful and interesting to the genuine lover of nature I have not any doubt. It is not necessary here to enter upon the advantages to be derived from the study of Natural History; it will suffice to say, that many of the best and wisest men in all ages have been devoted to it; I may be allowed however to give the words of Sir James Smith, who has truly said, that it never disappoints, never satiates, and the cultivation of it not only fits the mind for the advancement of its own internal powers of happiness, but also renders it doubly capable of adding to that of others.

Such were the sentiments which engaged my mind when I commenced this work; but if experience alone can teach us wisdom in the common affairs of life with which we are familiar, how much more probable is it, that in the progress of enterprises and speculations with which we are totally unacquainted, we should meet with disappointments, and often be taught a lesson we little expected! such has been my fortune.—I had little idea of the large sum of money that would be required to carry on an illustrated publication, containing several hundreds of highly-finished coloured engra-

vings* ; of the incessant labour and anxiety which a periodical would entail upon me ; of numerous minor difficulties to which an author is exposed in the different stages of his work, and the little encouragement given to expensive works of art :—these have rendered the *British Entomology* a heavy tax for many years, and I have only been encouraged in my progress, by a desire to fulfil my promise to the Subscribers, and with the prospect of making it generally useful to those who are engaged in scientific pursuits. I now trust that the attention which has been paid to every department will recommend this work to those who have withheld from purchasing it, from their avowed and just objection to taking publications in numbers, and as it will, I trust, become the basis for a well-grounded knowledge of insects, I may anticipate some remuneration from other sources. It is also most earnestly hoped that those Subscribers who have discontinued taking the *Work*, will now do me the justice to complete their copies, without which I must be subjected to great loss, and their own volumes will be of no value after a short period, as the stock is in the course of being perfected by reprinting the deficient parts.

Although I believe that I have never neglected to acknowledge any obligations in the course of publication, I should be ungrateful not to avail myself of this opportunity to repeat my thanks for the many contributions, both of *Insects* and *Plants*, which have been received from scientific men for so long a period, as well as to those whose names are recorded in the following List of Subscribers, who, by their steady and continued support, have so handsomely assisted in bringing my labours to a successful termination. Neither can I be unmindful of the blessings that have been bestowed upon me of health, strength and perseverance, which have enabled me to complete this *Work* on the day I anticipated, when the second number was published the end of January, 1824.

* To enable those who are ignorant of the nature of such undertakings, to form some conception of their risk and magnitude, it may be here stated, that the colouring alone of the Plates has already cost upwards of £3000.

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97. <i>Carex divisa</i>	706	120. <i>Zannichellia palustris</i>	718
98. <i>Epipactis Nidus-avis</i>	498	121. <i>Tamus communis</i>	443
99. <i>Radiola millegrana</i>	358	122. <i>Anthoxanthum odoratum</i>	514
100. <i>Tuber cibarium</i>	251	123. <i>Sedum dasyphyllum</i>	410
101. <i>Sedum acre</i>	379	124. <i>Littorella lacustris</i>	107
102. <i>Poa aquatica</i>	566	125. <i>Lysimachia nemorum</i>	164
103. <i>Avena elatior</i>	742	126. <i>Leucojum aestivum</i>	108
104. <i>Coprinus?</i>	334	127. <i>Viola canina</i>	168
105. <i>Agaricus coccineus</i>	71	128. <i>Galanthus nivalis</i>	462
106. <i>Alopecurus bulbosus</i>	534	129. <i>Caulis nodosa</i>	422
107. <i>Ligusticum scoticum</i>	758	130. <i>Splachnum ampullaceum</i>	315

Folio.

- 1 line 22 for *Duftschtmidt* read *Duftschtmid*.
- 6 line 25 for black behind read black before and behind.
- 15^b line 9 for *nigrita* read *Nigrita*.
- 23 for *Siagonum* read *Siagonium*.
- 47 line 17 for 3-jointed read 2-jointed, 1st joint clavate, 2nd attenuated; external 4-jointed, &c.
- 52^b line 4 for *Austriacus* *Panz.* read *fracticornis* *Fab.*
- 63^b 3rd from the bottom, for female read male.
- 79 line 37 for 4 read 2.
- 87 line 22 for *spheciform* read *fusiform*.
- 87 line 28 for neck read contracted base of the abdomen.
- 87^b line 1 for neck read contracted base of the abdomen.
- 99^b line 31 for *flavo-maculatus* read *flavo-scutellatus*.
- 171^b line 4 read 1. *S. madidus*, *Fab. Ent. Syst.*—*Marsh.*—*Olivier's t. 5, f. 61.* represents another insect, although it is referred to by *Fabricius*, *Marsham*, and *Schönherr*.
- 203^b for *paludosus* *Gyll.*, read *meridianus* *Linn.*
- 204^b line 15 for *Onthophagus* read *Onthophilus*.
- 231^b line 27 for *Lardew* read *Cardew*. Fol. 250 for *hybernicus* read *hibernicus*.
- 250 8th from the bottom, for crown of the head, read crown and
- 286 line 11 for *Trechi* read *Trichii*.
- 303 *Lesteva Leachii* may possibly be the *A. dichrous* *Grav.*
- 315^b add to the last line after insect, "and is magnified about twice the size of nature."
- 346^b 25 after centre add (fig. 9). Obs. The figure of *Leiochiton Readii* is scarcely coloured blue enough. Fol. 374 line 38 for *SCITICA* read *STRICTICA*.
- 374 in the description of the Palpi the basal joint has been omitted; read therefore at line 20: *Palpi* not reaching the apex of the lobe, naked, quadriarticulate, inserted in a deep groove, basal joint slender but concealed, 2nd cup-shaped, 3rd a little longer, 4th equal in length to the others united, elliptical (3).
line 24, *Palpi* inserted in cavities on each side, short triarticulate, basal joint and part of the 2nd concealed, 3rd twice as long, stouter and subovate (4).
- 406^b ***AMPHIMALLA*, *Lat.* Although I had collected at various times a large number of specimens, I was mistaken in supposing that I had the sexes, for there was not a female amongst them, which has been the cause of my giving incorrect characters of this subgenus; they ought to have been—*Antennæ* 9-jointed, 3 terminal joints forming the club which is very small in the female. The legs differ in the sexes, as in the other species.
- 446 I have lately seen a specimen of *C. purpurascens* *F.* taken by Mr. Saunders near Weymouth.
- 526 *Anisoplia suturalis* has been found by Robert Ball, Esq., of Dublin, in abundance on the *Rubus saxatilis* in South Arran Islands, Ireland; they dropped into the heath as if dead when disturbed. Mr. Wm. MacCauley, an intelligent young man, at Roundstone, in Connemara, has taken specimens on the sand-hills in that neighbourhood.

The letter ^b, following the number of the folio, indicates a reference to the second page of the leaf.

Obs. In many instances opportunities offered of correcting the Errata in a portion of the letter-press and plates, and it is hoped that in the reprinted Folios none will occur.



Publ. by J. Curtis Sc. in Nov. 1. 1822.

CICINDELA SYLVICOLA.

ORDER Coleoptera. FAM. Cicindelidæ Lat., Leach.

Type of the Genus Cicindela campestris Linn.

CICINDELA Linn., Fab., Marsh., Sowerby, Don., Lat., Dej., Gyll., Steph.

^a *Antennæ* inserted before the eyes, near the basal angles of the labrum; filiform, pubescent, excepting the 4 basal joints, 11-jointed; 1st joint robust obovate; 2nd minute, 3rd slender, much the longest; 4th longer and more slender than the following which are rather stouter and truncated, slightly decreasing in length to the apex (fig. 6).

Labrum large, exserted, often transverse, subtrigonal, sides parallel, anterior margin sinuated, slightly acuminate in the centre and producing a few bristles (1).

Mandibles long and powerful, curved, very acute, producing 4 strong teeth on the internal side, the basal one bifid and partially clothed with thick pubescence (2).

Maxillæ rather short and broad, the apex terminated by an articulated claw, the internal edge ciliated with several rows of rigid bristles.

Palpi, internal rather longer than the maxilla, biarticulate, basal joint the longest, clavate; 2nd curved, subclavate, truncate: *external* long, 4-jointed, basal joint small, 2nd very long and robust, 3rd and 4th nearly of equal length, clavate (3).

Mentum moderately large, transverse, anterior angles rounded, very deeply emarginate, forming 2 lateral lobes acuminate at their apex; a very strong tooth in the centre extending as far as the margin of the mentum. *Palpi* 4-jointed, as long as the maxillary; basal joint or scape short, 2nd small cup-shaped, 3rd very long, robust and pilose, 4th not more than half the length, slender and clavate (4). *Lip* very small, horny, concealed by the mentum.

Head broad, flat on the crown. Eyes prominent. Thorax subquadrate, frequently not so broad as the head. Scutellum minute. Coleoptera much broader than the thorax. Wings ample. Legs long, anterior the most robust in the males, posterior the longest. Trochanters very short. Tibiæ never emarginate, spurred at the apex. Tarsi long, slender, 5-jointed, the 3 first joints very much dilated and cushioned beneath in the males. Claws small. Pulvilli none (5, fore leg of a male).

SYLVICOLA Meg., Lat. et Dej. Icon. p. 51. n. 10.—C. hybrida Duft.

Above green tinged with purple, beneath metallic, green and blue. Head and thorax very finely punctured, elytra shagreened, with cream-coloured interrupted lunular marks at the shoulders and apex, and an abbreviated sinuated fascia in the middle. First 4 joints of antennæ shining green, the remainder velvety, black. Legs and underside clothed with white hairs.

In the Cabinets of Mr. Stephens and Mr. Dale.

^a The reader will please to observe, that throughout the work, the dissections will be made from the insect established as the type of the genus, unless stated to the contrary; and the figures occurring in the descriptions will relate to the same figures in the plates.

THE Cicindelæ are carnivorous, living entirely upon other insects both in their larva and perfect states, which caused Linnæus to apply to them the term of insect tigers. The history and economy of the larvæ are related in a very interesting manner by Geoffroy, by Latreille in his *Histoire Naturelle*, and in the Introduction to Entomology; and a figure of one is given in the 17th Plate. These chilopodiform larvæ have a very large flat head, with 6 or 8 eyes; they are furnished with strong falcate mandibles similar to those of the perfect insects, and also with a labrum, maxillæ, 6 very short palpi, and a mentum; they have palpiform antennæ; the thoracic shield is large; and they are supplied with 6 feet, and an anal proleg; the tarsi are biarticulate, and terminated by 1 or 2 claws; the abdomen is fleshy, with 2 tubercles on the back, each producing a recurved hook, which are said to assist it in ascending, and probably descending its burrow, and may by being brought in contact with the head enable it to hold its prey. They live in sandy situations, and may be found from the beginning of April to the commencement of autumn, and are easily taken by introducing a straw into their burrows, by which means the extent of their habitations may be traced, sometimes descending to the depth of 18 inches. Our larva, like the ant-lion (*Myrmeleon formicarius*), lies in wait to entrap and devour any small insect that may pass over the mouth of his burrow, where he watches, his head exactly fitting the orifice.

The perfect insects delight in the sunshine, when they are excessively active, and fly short distances with perfect ease, and are rendered difficult to capture from their not suffering any one to approach sufficiently near to secure them before they again take wing: they prefer sandy and generally dry situations, some living in arid wastes and banks, others on sand-hills near the sea shore, one only of our species inhabiting the sides of running brooks and moist places.

The Cicindelidæ being the most perfect in their organization, Latreille has been induced to depart from the systems of Linnæus and Fabricius, who commenced with the Scarabæidæ, and to place that family at the beginning of his arrangement, in which he is followed by all the naturalists of the present day.

Our genus, and the whole family to which it belongs, differ from all the Carabidæ in having a moveable claw at the apex of the maxillæ, in the proportions of the tooth of the mentum, in the great length of the labial palpi, occasioned by the remarkable extension of the penultimate joint, by the perfect and free motion of the scape or basal joint^a, and by the minuteness of the lip.

^a The scapes to which the labial palpi are attached being completely developed and moveable, they are usually described as 4-jointed; the same part is found in the Carabidæ in a modified form, but is generally absorbed in the other families. It ought to be observed also that the internal maxillary palpus, which is perfectly developed in the Adephagi, becomes modified in the other sections, and is then described as the external lobe of the maxilla.

Although this family contains several genera, *Cicindela* is the only one that inhabits Europe; and out of the numerous species recorded of this beautiful and elegant group, amounting to 130, (20 of which are European,) 6 only have been discovered in this island, viz:

1. *C. sylvatica* Linn. *Faun. Suec.* n. 748.—*Don. Brit. Ins.* 10. pl. 351. 1.

Labrum trigonate acute, black. Above silky purplish black; elytra with deep foveolæ; an interrupted lunular cream-coloured spot at the shoulder, an undulated abbreviated striga across the middle, and a spot towards the apex of the same colour.

The largest of our species, and is found in June and July on sandy heaths. When the Rev. W. Kirby first took it in Suffolk, upon Martlesham Heath, it was considered a rare insect; but it has been since taken in Surrey, and on Parley Heath, Hants, by Mr. Dale and myself, in abundance.

2. *C. Sylvicola* Megerle,—*Curtis Brit. Ent.* pl. 1.

Labrum subtrigonate, acuminate, dull ochreous. Labial palpi ferruginous, terminal joint black with an æneous or violaceous tinge.

The insect figured was taken in Epping Forest in June 1820, and the same year it was found in profusion in different parts of the continent. Mr. Dale has since received a mutilated specimen from Sir Patrick Walker. The palpi are described from a specimen in the British Museum, and a German one in my own cabinet.

3. *C. hybrida* Linn. *Faun. Suec.* 747.—*Gyll.* 2. p. 3. n. 2.—*Lat. et Dej. Iconographie*, p. 48. n. 7.—*Tab.* 4. f. 1. and *C. riparia*, f. 2.—*Steph. pl.* 1. f. 1.—*var. β. C. aprica* Steph.

Labrum transverse, subquadrate, with a little tooth in the middle; palpi violaceous, black; external maxillary with the 2nd, and labial with the 3rd joint ferruginous or subochraceous. Above cupreous inclining to obscure-green; elytra with a cream-coloured lunular spot at the shoulder and another at the apex, and an abbreviated undulated fascia across the middle.

Not uncommon on the sand-hills at Southport and Preston, Lancashire, in July and August. For specimens of this insect and the varieties I am indebted to E. T. Bennett, Esq., Mr. Henry Baines of York, and Mr. Edward Hobson of Manchester; and having had an opportunity of examining upwards of thirty specimens, I feel satisfied, from the considerable differences in the form and markings of them, that *C. riparia* and *C. aprica* are only varieties of *C. hybrida*.

Although Latreille and Dejean have expressed a doubt, whether the next species might not be the *C. hybrida* of Linnæus, they described the one under consideration by that name; and Gyllenhal has confirmed their decision by referring to their figures and descriptions with their relative names. It is certainly not improbable but Linnæus might have considered the *C. maritima* and even *C. Sylvicola* as varieties only of *C. hybrida*; but that his description was drawn from the *C. hybrida* of Dejean and Gyllenhal, there can be

little doubt, from his own words, "Elytra in medio fascia alba, *undata*, simili sequentis speciei (*C. sylvatica*) et ad marginem exterio-rem baseos, uti etiam ad apicem, lunula alba." For if *C. maritima* Dej. had been the insect before him, he would surely have said *flexuosa* and not *undata*; and it is not unimportant to observe, that the insect considered as the true *C. hybrida* by Gyllenhal is abundant in Sweden, whilst the *C. maritima* is rare.

4. *C. maritima* *Iconographie*, 1. p. 52. n. 11. tab. 4. f. 5.—*Gyll.* v. 4. p. 396. n. 3.—*hybrida* *Marsh.*—*Sowerby's Brit. Mis.* tab. 18.
Labrum like the last. Labial palpi pale ochreous, terminal joint æneous black. Above cupreous, somewhat greenish; elytra with a lunular spot at the shoulder and apex, and an abbreviated flexuous cream-coloured fascia across the middle.

This species is smaller, narrower and more depressed than the former, and the tarsi of the males are often less dilated. It occurs in abundance on the sand-hills near Great Yarmouth, Norfolk, in May and June; it has also been found at Swansea, and Weston-super-mare, Somerset.

5. *C. campestris* *Linn. Faun. Suec.* n. 746.—*Don.* v. 1. pl. 12.
Labrum transverse, subtrigonal; generally acuminate. Green, breast and legs ruby-cupreous; elytra with 5 white spots on the margin and one below the centre of each, encircled with brown.

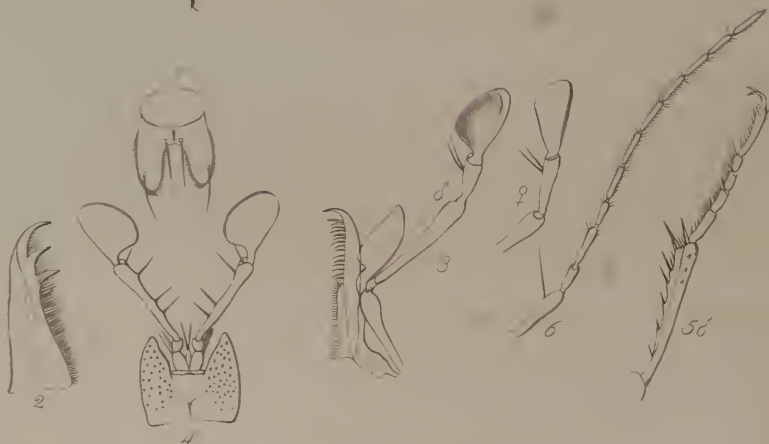
Common from March to October on sandy banks and heaths, in fields and pathways.

6. *C. germanica* *Linn. Syst. Nat.* 1. pars 2. p. 657. n. 4.—*Iconographie*, tab. 5. f. 6, 7.
Labrum transverse, 3d joint of maxillary palpi only half the length of the 4th. Subcylindric, green cyaneous; elytra with a white spot at the shoulder, another on the margin and a lunular one at the apex.

This pretty insect has been taken near Dartford in Kent, and at Black Gang Chine in the Isle of Wight, in July, running with great rapidity among the short grass on the margin of a small brook. I took one near the latter place the 1st Sept.; and in the middle of the same month the Rev. C. S. Bird took a specimen at Basildon near Pangbourne.

The plant is *Poa annua* (Annual Meadow Grass)³.

³ Whenever the plant to which an insect is attached can be obtained, it will be introduced in the plate; but as some feed upon putrid animal and vegetable substances, many upon each other, and as not unfrequently their habits are totally unknown,—in such instances plants will be introduced with a view to make the work as handsome and instructive as possible; and as it is absolutely necessary in order to collect insects with complete success, to be acquainted with our native plants, it is hoped that figures from wild specimens will prove acceptable and useful to the reader.



Carabus (C.) ...

CYCHRUS ROSTRATUS.

ORDER Coleoptera. FAM. Carabidæ.

Type of the Genus, Tenebrio rostratus Linn.

CYCHRUS Fab., Lat., Curt.—Carabus Marsh.—Tenebrio Linn.

Antennæ inserted on each side the head considerably before the eyes, slender and attenuated, 11-jointed, basal joint the longest and stoutest, 2nd and 4th the shortest, 3rd nearly as long as the 1st, the following pubescent, 5th considerably longer than the 4th, the remainder slightly decreasing in length, the 11th as long as the 5th, attenuated and conical (6).

Labrum produced into 2 long, rounded, and densely ciliated lobes, with 2 long bristles in the middle near the base, and one on the outside of each lobe towards the apex (1).

Mandibles porrected long and narrow, the apex forming a curved tooth, with 2 others below, the whole of the internal margin thickly ciliated (2).

Maxillæ porrected, long and slender, terminated by a narrow horny lobe hooked at the apex, ciliated with curved spines, with a membranous and ciliated margin extending to the base. *Palpi*; *internal* forming a thin dilated subovate slightly falcated lobe; *external* long and large, 4-jointed, basal joint minute, 2nd very long and clavate, 3rd short elongate-obovate, truncate, producing 2 bristles on the inside, longer in the females, 4th joint spoon-shaped in the males (3♂), hatchet-shaped in the females (♀).

Mentum rather large and subquadrate, sides slightly convex, anterior margin deeply cut out, forming 2 subtrigonal lobes, with a slightly convex margin in the middle, from whence arise the *Palpi*, which are as large as the maxillary and attached to scapes united at their base, triarticulate, basal joint minute globose, 2nd very long clavate, producing 3 spines on the inside, 3rd joint very large, subovate, narrow at the base and spoon-shaped, smaller and hatchet-shaped in the females. *Lip* formed of 2 divaricating linear lobes with a small and shorter one in the centre producing 2 bristles (4).

Head long narrow and ovate. Eyes small prominent and lateral. Thorax broader than the head, obovate truncate, posterior angles reflexed. Scutellum nearly concealed. Elytra twice as broad as the thorax, ovate-conic, connate and embracing the abdomen. Wings none. Legs alike in both sexes. Tibiæ spurred, anterior not emarginate but hollowed beneath at the apex. Tarsi slender, basal joint the longest, 3 following obtrigonal, 5th as long as the 1st clavate. Claws slender bent and acute (5♂, tibia and tarsus of fore leg).

ROSTRATUS Linn. Faun. Suec. 226. 823.—Curt. Guide, Gen. 11. 1.

In the Author's and other Cabinets.

LINNÆUS in this and in many other instances confounded the Carabidæ with the Heteromerous insects that resemble them, and in no instance does the discovery of Geoffroy appear to more advantage than it does here; for merely by ascertaining the number of joints in the posterior tarsi, the family to which the individual belongs is at once ascertained, and the correctness of this simple division is fully confirmed by the structure of the mouth.

Cychrus appears to be allied to Calosoma (pl. 330), the form of the labrum, &c. making some approach to that type. It is certainly a very remarkable insect, and its attenuated figure, simple tibiæ and tarsi, singular mandibles, deeply notched labrum, spoon-shaped palpi, and dilated internal maxillary ones, and toothless mentum, are all characters interesting to those who take pleasure in investigating anomalies and natural affinities. The proportions of the antennæ, the simple anterior tibiæ, connate elytra and absence of wings, leave no doubt of its belonging to the true Carabi; but its affinity to the Scaritidæ by means of Ditomus is I think very far from being established.

The Cychri are found in North America as well as in Europe, extending to the eastern boundary of Russia.

C. elongatus and *C. attenuatus* have carelessly been recorded as British; but the specimens supposed to have been the former insect I stated at the time were only varieties of *C. rostratus*; and Mr. Stephens has since acknowledged the admission of the latter to be a mistake of his own: the only species found in Great Britain is

C. rostratus Linn.—Curt. Brit. Ent. pl. 426.

Black, shining, rugose: mandibles and maxillæ castaneous: antennæ, excepting the 4 basal joints, yellowish-brown with pubescence: head minutely punctured: thorax thickly, coarsely and irregularly punctured, sides margined, a fovea in front, excavated at the base with a faint channel down the centre: elytra thickly punctured or granulated, sometimes leaving 2 or 3 indistinct elevated lines on each.

I have generally found this insect in plantations in May and August, amongst moss, dry leaves, and under the trunks of decayed trees lying on the ground. It is taken round London, particularly "at Coombe-wood in the spring, amongst dead leaves in the water-courses, or under the refuse materials of faggots:" it occurs in Devon, near Malvern in Worcestershire, is found in Norfolk, and as far to the north as Loch Lomond; and Mr. Haliday informs me he has taken it near Belfast in Ireland.

The Plant is *Geranium lucidum* (Shining Crane's-bill).



CARABUS EXASPERATUS.

ORDER Coleoptera. FAM. Carabidæ.

Type of the Genus, Carabus violaceus Linn.

CARABUS Linn., &c.—Tachypus Weber.

Antennæ inserted before the eyes close to the base of the mandibles, as long as the head and thorax, 11-jointed, slightly tapering, and pubescent, 3 basal joints naked, the 1st long robust and elliptical, 2nd and 4th the shortest, 3rd a little longer than the basal joint, 5th and remainder shorter than the 3rd, slightly decreasing in length and stoutness to the apex (6).

Labrum short transverse, the ends rounded and ciliated, slightly concave at the centre and producing a few bristles (1).

Mandibles porrected, rather long curved and attenuated to the apex, which is obtuse and slightly bent; a broad notched tooth on the inside with a membranous margin below densely ciliated (2).

Maxillæ narrow, terminated by an acute claw, pubescent above, ciliated with spiny bristles inside, external lobe palpiform, extending to the tip of the maxillæ, biarticulate, basal joint clavate, 2nd stout ovate. *Palpi* long naked and 4-jointed, basal joint short, 2nd long clavate, 3rd and 4th of equal length, the former clavate the latter large and hatchet-shaped (3).

Mentum transverse, sides rounded, anterior margin but slightly concave, the centre produced forming a trigonate lobe. *Lip* small, subquadrate, the centre slightly produced, rounded and ciliated with bristles. *Palpi* as large as the maxillary but shorter, attached to the disc of the lip, triarticulate, basal joint rather short, 2nd long linear and furnished with 5 spiny bristles on the inside, 3rd joint large and hatchet-shaped (4).

Head narrow and ovate. Eyes prominent and globose. Thorax subquadrate, sides a little convex and margined, posterior angles lobed: scutellum minute trigonate. Elytra elliptical ovate. Wings minute leathery appendages (12; a, the base). Legs strong: thighs stout: tibiæ spurred, anterior the shortest and stoutest, with a short notch at the apex and 2 spines, hinder pair the longest: tarsi 5-jointed, anterior dilated in the males, the 3 basal joints cushioned beneath: claws bent, acute (5).

EXASPERATUS Duft., Meg., Dej.—Curt. Guide, Gen. 12. 9^a.

Black, shining, head and thorax finely wrinkled, the latter broad and subquadrate reticulated, distinctly and thickly punctured on the sides which are blue and violaceous with a channel down the centre: elytra with numerous fine longitudinal elevated lines with punctures between them, scabrous towards the apex (fig. 11); the margin reflexed and violet colour: pubescence of antennæ ferruginous: claws, spurs and mandibles partially castaneous.

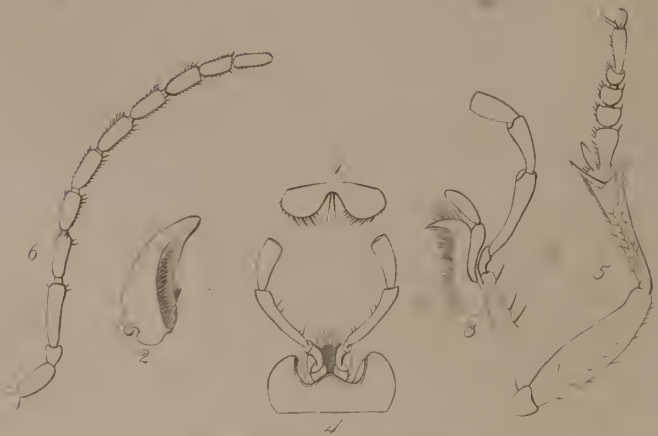
In the Author's Cabinet.

THE true Carabi possess a very remarkable power, for when pursued and alarmed they are able to spirt from the apex of the abdomen an excessively acrid and I suspect a gaseous fluid, which occasions a very severe pricking sensation when it falls on the skin, but the pain is of short duration.

There are now considerably above 2000 species known of this family alone, from different parts of the globe, and Dejean enumerates 163 species of the genus *Carabus*: in this island the following only have been discovered.

1. *C. intricatus* L.—*Don.* 15. 526. 1.—*cyaneus* Fab.—Ashburton, and end of May under a stone in a wood opposite the Virtuous Lady's Mine on the river Tavy, below Tavistock, Devon.
2. *C. catenulatus* Fab.—*Panz.* 4. 6.—*intricatus* Fab.—June, middle of October. Heaths, Norfolk and Isle of Wight; mountains, Cumberland, Wales, Scotland, and Ireland.
3. *C. Lippii* Dahl.—*Dej. Icon. pl.* 37. f. 4.—Mr. Samouelle informs me this is not the *C. agrestis*, the insect described by Mr. Stephens. It is said to have been taken in Lincolnshire.
4. *C. monilis* F.—*catenulatus* Marsh.—Common everywhere.
5. *C. consitus* Panz. 108. 3.—Near London, and middle of July, Dover, J. C.
6. *C. cancellatus* Ill.—*granulatus* Steph. 1. 51. 7.—Spring, in a chalk-pit near Gravesend, Mr. Ingpen.
7. *C. granulatus* Linn.—*Don.* 7. 222. 3.—*cancellatus* Fab., Steph.—May, gardens and pathways everywhere; December, under bark of willows.
8. *C. arvensis* Fab.—*Panz.* 74. 3; & 81. 3.—June, beginning of July, heaths and roots of trees Epping and New Forests, Wimbledon Common, Devon, mountains Ambleside, Isle of Arran and Ireland.
9. *C. violaceus* L.—*Don.* 7. 222. 1.—*Panz.* 4. 4.—June, July, September, October, roots of trees, under stones, gravel-pits, &c. everywhere in England, but rare in Ireland.
- 9^a. *C. exasperatus* Duft.—*Curt. B. E. pl.* 446.—I took a female of this rare insect the 24th of June 1831, under a block of stone near a quarry in the Isle of Portland, but no one has been able to find another since.
10. *C. glabratus* F.—*Don.* 15. 506.—June, mountains Ambleside, amongst long grass. July, Scotland and Ireland.
11. *C. convexus* F.—*Steph. pl.* 4. f. 2.—Said to have been taken in Longmont Forest, Shropshire, by the Rev. F. W. Hope.
12. *C. nemoralis* Ill.—*hortensis* F.—*gemma* Don. 7. 222. 2.—June, in gardens, Norfolk; under stones and dead leaves near London; also in Scotland and Ireland.
13. *C. clathratus* L.—*Don.* 15. 526. 2.—April, in drills, Halvergate marshes, Norfolk, in Scotland and on the coast of Ireland.
14. *C. auratus* L.—*Ste. pl.* 3. f. 6.—Exmouth Devon, Canterbury and near Dover, Mr. H. Griesbach: this specimen is stated by Mr. Stephens to be the *C. auronitens* of Fab., a species that has never been found in England.
15. *C. nitens* L.—*Don.* 9. 313.—This splendid insect has been taken in May in the New Forest, on Hurn and Pool Heaths, Dorset; Yorkshire, Durham, Northumberland, near Carlisle; end of July, very moist places on mountains, Ambleside; Kinnordy Forfarshire, where some are nearly black from age; also near Belfast.

The Plant is *Atropa Belladonna* (Deadly Nightshade).



Platylabus fuscicornis (L.)

CALOSOMA SYCOPHANTA.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus, *Carabus Sycophanta* Linn.

CALOSOMA Web., Fab., Lat., Sturm, Sam., Curtis.—*Carabus* Linn., Oliv.—*Buprestis* Geoff.

Antennæ inserted close to the anterior margin of the eyes, rather short, filiform, a little tapering at the apex, pubescent, excepting the 4 basal joints; 11-jointed, 1st joint the most robust, 2nd small, 3rd the longest, flattened at the base, remainder nearly of equal length, terminal joint slender and sublinear (6).

Labrum broad, short and bilobed, the lobes ciliated with short strong bristles (1).

Mandibles exerted, long large curved and rather obtuse, striated obliquely above, thickly pubescent on the inside, and producing a tooth near the centre (2).

Maxillæ forming a strong acute hook, entirely clothed outside with bristly hairs, extending beyond the apex and forming cilia on the inside. *Palpi*; internal considerably longer than the maxilla, composed of 2 joints, of nearly equal length, the basal one clavate, the other suboval: external long, 4-jointed, basal joint short, 2nd very long, clavate, 3rd shorter, clavate-truncate, 4th scarcely so long, oblong-truncate (3).

Mentum transverse, deeply emarginate, the lateral lobes not acuminate, the centre forming an angular lobe. *Palpi* long, attached to two distinct corneous globose scapes, 2nd joint short and curved, 3rd very long clavate, furnished with 4 or 5 bristles on the inside, 3rd joint much shorter, elongate, ovate-truncate.

Labium very short, subquadrate, the centre corneous and pilose, the sides forming 2 very short and pubescent lobes (4).

Male smaller than the female. Head rather small. Eyes small, globose and prominent. Thorax short and twice as broad as the head, transverse-oval, truncated before and behind. Scutellum small and triangular. Coleoptera very large, and broadest below the middle, especially in the female, ovate, angulated at the apex. Wings very ample. Legs long and robust. Tibiæ; anterior scarcely notched, but truncated obliquely and grooved beneath, with two spines at the apex. Tarsi with a double row of spines beneath; anterior dilated in the males. Claws bent (5).

SYCOPHANTA Linn. Faun. Suec. n. 790.—Curtis's Guide, Gen. 13. n. 1.

Black, shining. Head and thorax rather rugosely punctured, slightly violaceous, the sides of the latter bright green when viewed from above. Elytra brilliant green with a fine cupreous tint; each having an abbreviated, and about 15 long crenated striæ, the interstices transversely striated, with a minute puncture on the centre of each, also several larger punctures between the 3rd and 4th, the 7th and 8th, and the 11th and 12th striæ; the margin rugose to the apex; beneath violaceous or blue green.

In the Author's and other Cabinets.

OUR cabinets contain only two British species of this fine genus.

1. *C. Sycophanta* Linn.—Curtis B. E. pl. 330. ♂.—Int. to Ent. pl. 1. f. 1. ♀.

Donovan (v. 14. pl. 477.) has figured under this name a North American insect, *C. Scrutator* Fab.: it is distinguished by its larger size, and by a shorter thorax margined with gold.

Reaumur has given an interesting account of the economy of *C. Sycophanta* in his second volume, p. 455. The beetles live in trees, feeding upon caterpillars; and their larvæ devour those of the *Bombyx processionea* Linn., and are very gluttonous.

I have always suspected that this beautiful insect, like *Papilio Podalirius*, *Vanessa Antiopa*, *Melalontha Fullo*, and many others, is only an occasional visitor of our island, for it has always been captured upon or near the sea-coast, and I believe invariably in an exhausted state. The one found at Norwich in June was the furthest from the sea of any that I have heard of, and there the distance is inconsiderable. I saw this specimen soon after it was taken; it was then quite dead, though not stiff. Last year a considerable number were found along the coast of Norfolk, Suffolk, and Sussex: Mr. Hewitson obtained some from Lowestoft; Mr. Waller Clifton picked up a fine specimen floating off Hastings; another was brought to Yarmouth found thirty miles from the shore; and Mr. Sparshall writes me word that some were found in the wash of the sea near that town, and several were taken on the shore feeding on putrid fish. It has also been met with at Aldborough and Southwold in Suffolk, and at Dartmouth in Devon.

2. *C. Inquisitor* Linn. Faun. Suec. n. 789.—Don 14. pl. 504.—Panx. 8. 8.

Half the size of *C. Sycophanta*, and similar to it in the sculpture, which is stronger and more evident. It is black, cupreous above, the margins bright green and green beneath.

This handsome insect inhabits Oaks and White Thorn hedges, and is found in June. It has been captured at Coombe and Darent, Norwood and Epping Forest; near Windsor it has been taken by Mr. H. Griesbach, and by the Rev. C. S. Bird near Burghfield, Berks. The late Mr. J. Hooker took one in St. Faith's Wood, Norfolk, and Mr. Tardy has seen them flying amongst Oak-trees at Powerscourt in Ireland.

Dr. Buckland has the elytra of a fossil beetle, belonging, I think, to this genus, or possibly to Mr. Kirby's *Adelium*, a genus confined I believe to New Holland.

The plant is *Anthyllis vulneraria* (Kidney Vetch, or Ladies' Finger).



Chrysomelidae (Lep. 1858)

PELOPHILA BOREALIS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus, *Carabus borealis* Payk.

PELOPHILA Dej.—*Nebria* Gyl.—*Blethisa* Bon.—*Carabus* Payk., Fab.

Antennæ inserted before the eyes at the base of the mandibles, rather short, filiform and pubescent, excepting the 4 basal joints; 11-jointed, 1st joint the most robust, 2nd obovate, 3rd rather the longest, 4th shorter than the following, the terminal joint ovate-conic (6).

Labrum transverse, sides convex, angles rounded, anterior edge emarginate and ciliated (1).

Mandibles porrected, naked, bent and acute, one producing a tooth near the middle on the internal side (2).

Maxillæ rather long and slender, terminated by an acute hook, ciliated on the inside with a double row of spiny bristles. *Palpi*; internal biarticulate, basal joint scarcely longer than the 2nd clavate, the latter curved and terminated by a minute vesicle; external long and 4-jointed, basal joint minute, 2nd the longest subclavate, 3rd much shorter, 4th longer ovate-truncate (3).

Mentum large transverse, sides rounded, emarginate before, with a bifid lobe in the centre. *Palpi* long, attached to 2 moveable scapes, basal joint short and curved, 2nd and 3rd subclavate, the former rather the longest, the latter truncate. *Labium* not large rounded at the apex, slightly notched at each side and producing 2 bristles at the centre (4).

Head subtrigonal. Eyes small, prominent, not touching the Thorax which is scarcely broader than the head, cordate-truncate, and margined, the posterior angles acute. Scutellum very minute. Elytra much broader than the thorax, long and ovate, emarginate towards the apex. Wings ample. Legs rather long. Tibiæ, anterior very thick at the extremity and hollowed beneath, with 2 spines at the apex, the others spurred at the apex also. Tarsi, anterior with the 3 first joints very much dilated and spongy beneath in the males, the others slender, the basal joint not longer than the terminal one (5, fore leg of a female).

BOREALIS Payk. Faun. Suec. 1. p. 118. n. 28.—Gyll. 2. p. 42. n. 5.

Black, shining. Thorax with the sides yellowish-cupreous, a slight channel down the centre, a faint transverse angulated line on the anterior part, and a transverse double semicircular impression extending to the angles which are depressed. Elytra cupreous, with 8 punctured striæ on each, an oblique impression below the scutellum, 5 foveæ between the 3rd and 4th striæ and 4 between the 5th and 6th. Antennæ and legs castaneous, the former with the apex of the joints black, the latter with the apex of the thighs, tibiæ, and joints of the tarsi, black also.

In the Cabinet of Mr. Haliday.

THIS insect, which has been established as a genus by the Comte Dejean, appears to be related on the one side to *Nebria*, and on the other to *Blethisa*. Should such prove to be the fact, it will perhaps be found more natural to arrange a portion of the *Carabidæ* after the *Cicindelidæ*, thus: 1. *Cicindela*, 2. *Notiophilus*, 3. *Elaphrus*, 4. *Blethisa*, 5. *Pelophila*, 6. *Nebria*, 7. *Helobia*, 8. *Leistus*, 9. *Loricera*, 10. *Calosoma*, 11. *Carabus*, 12. *Cychrus*, 13. *Panagæus*, and the remainder as they stand in the "Guide."

It is certain that although a great resemblance exists between *Elaphrus* and *Bembidium* (*Carabus flavipes*, Linn.), the subulated Palpi of the latter separate it entirely from any of the above genera; whilst it is equally evident that the habits of *Notiophilus* and *Elaphrus* are very similar to those of the *Cicindelidæ*; and the Labrum seems to be a modification of that type. It is remarkable that whilst the males of *Pelophila* have the anterior tarsi very much dilated, those of *Blethisa* are but slightly so; and should the notch of the tibiæ be equally inconstant, it will be greatly in favour of the above arrangement.

The trophi of our insect are most like those of *Nebria* (pl. 6), the terminal joint of the Palpi not being dilated as in *Helobia*; and the Labium is rounded and simple, the 2nd joint of the labial Palpi is naked (excepting two bristles), and the joints of the internal maxillary Palpi are also unequal; but in the stoutness of the antennæ it differs from both these genera, and the notch on the tibiæ is short, transverse, and quite on the underside.

For the opportunity of figuring this fine addition to our Fauna, I am indebted to A. H. Haliday, Esq.: it has never been taken in England, and it is singular that it should not have been discovered in Scotland; for it inhabits the western coast of Lapland. The male represented was captured in Ireland, June 14th, 1829, on the sandy shore of Lough-neagh, by Robert Templeton, Esq. who presented it to the gentleman in whose Cabinet it is now preserved.

The plant is *Orobanche minor* (Less Broom-rape), found last July, close to the shore at Dover.



6.

NEBRIA LIVIDA.

ORDER Coleoptera. FAM. Carabidæ *Lat. Leach.*

Type of the Genus Carabus complanatus Linn.

NEBRIA *Lat., Clairv., Panz., Gyll., Bonel., Leach.*—*Carabus Linn., Fab., Oliv.*

Antennæ inserted before the eyes at the base of the mandibles, filiform, pubescent, excepting the first 4 joints; 11-jointed, 1st robust, 2nd the shortest, 5th the longest, 4th not so long as the 6th, the remainder gradually decreasing in length to the end (fig. 6).

Labrum transverse quadrate, scarcely emarginate, anterior angles rounded, ciliated (1).

Mandibles porrected, very much bent and acute at the apex, producing 2 strong teeth towards the base on the internal edge, slightly dilated externally (2).

Maxillæ short, very much bent, the claw very long, producing short pubescence and ciliated on the internal side. *Palpi* naked, internal biarticulate, 2nd joint the longest and slenderest; external 4-jointed, basal joint minute, 2nd the longest robust, 3rd and 4th of equal length, the latter dilated and truncated at the apex (3).

Mentum transverse, subquadrate, not deeply emarginate, the centre slightly produced and notched, anterior angles obtuse, internally acuminate. *Palpi* as long as the maxillary, arising from small scapes, triarticulate, basal joint not very short, 2nd long pilose; 3rd as long, dilated and truncated at the apex. *Lip* elongated, membranous, hollow, rounded, producing no laciniae at the sides (4).

Head in some broad and flat, the *nasus* produced. Eyes small. Thorax cordate, truncated behind. Scutellum minute. Elytra very much depressed. Wings ample. Legs; anterior the shortest, posterior the longest. Tibiæ; anterior not notched, spurred at the apex. Tarsi 5-jointed, anterior with the 3 first joints dilated and cushioned in the males. Claws simple (5, a fore leg).

LIVIDA *Linn. Faun. Suec.* 791.—*sabulosus Fab. Ent. Syst. v. l. p. 133. n. 40.*

Smooth, shining, pale ochraceous; piceous beneath. *Antennæ* ferruginous, excepting the 4 basal joints. Head black, frequently with 2 ferruginous spots on the crown. Thorax very much narrowed behind, deeply furrowed down the middle, with a deep concave impression at the anterior margin which is black, and a straight one at the base where it is black also. Elytra black with an ochraceous margin, 9 punctured and deep striae on each, the sutural one abbreviated, and 4 obscure points between the 3rd and 4th.

In the Author's and other Cabinets.

So much attention has been paid to the investigation of this family since it has formed with the *Cicindelidæ* the commencement of our system, that the list of species found in this island somewhat exceeds the number of those collected from every quarter of the

globe in 1801, when Fabricius published his *Systema Eleutheratorum*.

Nebria having been divided by Dr. Leach, it contains only 3 British species.

1. *N. complanata* Linn. *Syst. Nat.* 1. pars 2. p. 671. n. 17.—Don. *Brit. Ins.* 14. 488.—*arenarius* Fab., *Dej.*, *Oliv.*
Pale ochraceous; pellucid when alive. Elytra with 2 undulated, abbreviated black fasciæ, united by black longitudinal lines.

Sir Joseph Banks first discovered this insect at Swansea. Dr. Leach many years after found it in the same situation in May; and in September 1822 I was fortunate enough to take it in great abundance under the stones at high-water mark, on the sandy shore of the river Taw, near Braunton Burrows North Devon, after having been searching in vain for the larva of *Sphinx Euphorbiæ*: it has also been observed on the coasts of Somerset and Lincolnshire.

2. *N. livida* Linn., *Oliv.*, *Gyll.*—*sabulosus* Fab., *Dej.*, *Panz.* 31. 4.—var. *b. lateralis* Fab. ? *Dej.*

Dejean has described the insect figured in the plate as the *N. lateralis* of Fabricius, in whose description, however, it is said that the thighs are black: had it not been for this difference I should have considered my insect as synonymous with the latter species, differing as it does from the *N. livida* of Linnæus by a regularly narrow pale margin to the elytra; for it is remarkable that although a considerable number have now been taken, they all agree with the variety *b*, or *N. lateralis* *Dej.*

It was first discovered in Yorkshire by Mr. Spence, and a single specimen was afterwards taken by Mr. Wilkin the 28th Sept. 1814 beneath a fragment of rock at Hilston near Hull. It was found in some abundance last June (1827) on the sea shore near Scarborough in the same county, and probably all along the eastern coast; for on the 11th Sept. Mr. J. B. Giles discovered one under a stone on the cliff at Cromer in Norfolk.

3. *N. picicornis* Fab. *Ent. Syst.* 1. pars 1. p. 134. n. 44.—*Dej.*, *Panz.* 92. 1.—*Steph. pl.* 4. f. 3.—*erythrocephalus* Fab. *Ent. Syst.* 1. 155. 134.
Blackish, head and anus rufous; antennæ and legs testaceous. *Dej.*

First taken by Dr. Leach near Ashburton, Devon, and afterwards by the Rev. F. W. Hope in Longmont Forest, Shropshire. It inhabits the sandy sides of rivers and lakes.

Medicago lupulina (Nonesuch, Black or Hop Trefoil), both in flower and fruit, is the plant figured in the plate.



Saxifraga aizoides

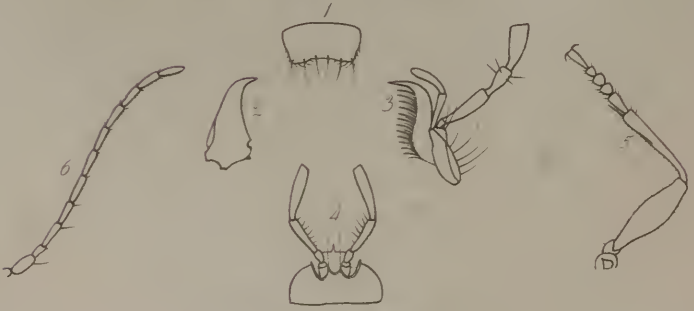


FIG. 1. 2. 3. 4. 5. 6.

HELOBIA GYLLENHALII.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus brevicollis Fab.

HELOBIA Leach's MSS. Nebria Lat., Clairv., Gyll. Carabus Linn., Fab., Marsh.

Antennæ inserted between the eyes and the base of the mandibles, pubescent excepting the 4 basal joints, 11-jointed, 1st joint robust oval, 2nd short, 4th not so long as the 3rd, remainder of equal length (fig. 6).

Labrum transverse, narrowed anteriorly, emarginate, ciliated (1).

Mandibles rather small, curved, acute, with 1 or 2 small teeth near the base (2).

Maxillæ arched acute, ciliated internally. *Palpi*; internal, composed of 2 clavate joints of equal length:—*external*, very long, 4-jointed, 1st joint minute, 2nd long robust, clavate truncate, 3rd shorter clavate with a few bristles, 4th nearly as long as the 2nd and more robust, clavate truncate (3).

Mentum transverse, side lobes acuminate internally, centre one acutely bifid. *Palpi* nearly as long as the maxillary, 3-jointed, basal joint minute, 2nd long, clavate, pilose, 3rd long, clavate-truncate. *Labium* quadrate horny, with a spine in the centre (4).

Head trigonate. Thorax cordate truncate, posterior margin straight.

Scutellum minute. Abdomen depressed. Wings 2. Legs long and slender, formed for running, with trochanters at the base of the posterior. Anterior tibiæ slightly emarginate. Tarsi 5-jointed, anterior slightly dilated in the males (5, a fore leg).

GYLLENHALII Schön. Syn. 1. 196. 163. Gyll. Ins. Suec. 2. 40. 3. Sturm's Deut. Faun. 5. 142. 3.

Black. Palpi, mandibles and antennæ slightly rufous at their extremities. Tarsi rufous, with a black spot at the apex of the 4 first joints.

Var. b. Piceous black, shining. Antennæ brownish, excepting the 4 basal joints, which with the palpi and mouth are piceous, sometimes inclining to ferruginous. Trochanters and legs ferruginous, apex of the thighs and the tibiæ generally fuscous, 4 basal joints of tarsi with a black spot above at their apex. Head smooth with several imperfect impressions, 2 between the eyes and 1 behind forming a triangle. Thorax smooth, margins coarsely punctured, especially at the base; with a transverse curved impression before and another parallel to the posterior margin, a channel down the centre, deepest in the middle; sides margined, reflexed, especially at the posterior angles, which are acute. Elytra smooth, with 1 abbreviated and 8 long minutely punctured striæ on each, with a fovea uniting the origins of the 2nd and 3rd striæ; 3 or 4 fovea between the 3rd and 4th, and 8 or 9 others upon the external stria.

In the Cabinets of Mr. Dale and the Author.

IN the early part of this work (folio 6) we gave some account of the genus *Nebria*, from which the present little group has been separated by Dr. Leach, and we regret not being in possession of his characters as well as his MS. name which has been adopted: the principal distinctions are the narrowed labrum, the equal length of the joints of the internal, and the shortness of the 3rd joint of the external maxillary palpi, the more quadrate mentum, the horny and acuminate lip, and the slight emargination of the anterior tibiae.

Our specimens of the rare insect figured (which has never been met with in England) were taken in a recent visit to Scotland by Mr. Dale and myself, who found many of them in July at a considerable elevation on the north side of Schichallien; and I again took them under fragments of stone near the summit of Craig-challoch, one of the Dochart hills near Killin. From the habitat, the punctured furrows on the elytra, and the colour of the legs of the specimen figured as a variety, with which many of my specimens accord, I should have considered it the *Carabus nivalis* of Paykul; but the specimens in the British Museum, one of which perfectly agrees with that figured, and the others with our description, were named by Dr. Leach *Helobia Gyllenhalii*, whose opportunities of examining authentic specimens being greater than our own, we have been induced to follow him. Gyllenhal also says of *Nebria nivalis*, "*Thorax brevissimus*;" whereas the thorax of our insect is not shorter in proportion than that of the type; and unfortunately I have not been able to find a specimen of *H. nivalis* in the British Museum or any cabinet I have had the opportunity of consulting.

Out of 20 or 30 specimens of our insect we had nearly an equal proportion of those with ferruginous tarsi only, like *H. Gyllenhalii*; the others, like the figure, with ferruginous legs: there were males and females of each, but no intermediate varieties. This, however, does not affect the question, because it is common to the *Carabidae*, as may be seen in *Calathus cisteloides* and *Steropus madidus*, some of which have black, others red legs.

Helobia brevicollis Fab., *Carabus rugimarginatus* Mars., the other indigenous species is one of our commonest insects, secreting itself under stones and at the roots of trees: a good figure is given of it in *Sturm's Deut. Faun.* v. 5. pl. 67.

The pretty *Saxifraga aizoides* (Yellow Mountain Saxifrage) frequently added greatly to the beauty of the banks of the rivulets and springs where the insect was found.



by Charles Key 1885

Neottia apicalis Gyll.

LEISTUS FULVIBARBIS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus spinibarbis Fab.

LEISTUS Froehlich Clairv., Leach, Sturm, Dej.—Pogonophorus Lat., Gyll.—Manticora Jur., Panz.—Carabus Fab., Marsh.

Antennæ inserted before the eyes, very long, filiform, slender, 11-jointed, 4 first joints naked, the remainder pubescent, basal joint long robust, 2nd short, 3rd as long as the 1st, 4th only half the length of the 5th which is the longest, the remainder decreasing very slightly in length (fig. 6).

Labrum transverse, rounded, producing a few long bristles in front, ciliated on the sides (1).

Mandibles acute, dilated externally towards the base, one producing a strong tooth near the middle on the internal edge (2).

Maxillæ long slender, very much bent and terminated by a slender acute hook, ciliated with rigid bristles on the internal edge, the external side below the palpi producing setiform spines.

Palpi 2, internal biarticulate, basal joint clavate, 2nd linear bent: external long, 4-jointed, basal joint minute, 2nd long rather stout, 3rd slender, much shorter, 4th not so long as the 2nd; subclavate truncated obliquely (3).

Mentum transverse, rounded before, emarginate, the centre produced and slightly notched, producing 2 bristles. *Lip* long horny, quadrate towards the base, the angles acuminate, attenuated beyond the middle, very slender at the apex, which produces 2 bristles and a strong spine on each side. *Palpi* as long as the maxillary, arising from very short scapes, 3-jointed, basal joint short, 2nd very long and slender, 3rd long, very clavate and truncated obliquely (4).

Head quadrate, strangulated at the base. Eyes very prominent, not touching the Thorax, which is broader than the head, margined, cordiform, and truncated at the base. Coleoptra much broader than the thorax, oval elongated. Scutellum small. Wings ample. Legs long. Thighs rather robust. Tibiæ all simple, spurred. Tarsi long slender and 5-jointed, 3 basal joints of anterior pair a little dilated in the males (5, fore leg of a male).

FULVIBARBIS Hoff., Dej.—rufibarbis Fab.?—Raulinsii Sam.

Shining. Eyes black. Mouth, antennæ and legs ferruginous ochre. Head and thorax bluish black, the latter convex, very much narrowed at the base, where it is deeply punctured as well as at the anterior margin; a deep channel down the centre. Elytra violaceous black with 9 punctured striæ on each, the 1st abbreviated, the 2nd and 3rd united at their base, 4 obscure punctures between the 3rd and 4th striæ, and a line of serrated punctures on the external margin. Beneath piceous.

In the Author's and other Cabinets.

THE two *Carabidæ* figured in this number (*Clivina* and *Leistus*) present as different aspects as any European forms contained in the family, one of them being narrow, nearly cylindric, with short strong legs, the anterior notched, the antennæ short and moniliform, (a structure very rare amongst this tribe of beetles); the other being broad depressed, with long slender legs, the anterior not notched, and the antennæ very much elongated: upon examining the mouths however, by accurate dissection, which we hold to be the touchstone of truth, ample proof will be found of their being related to each other, although the *trophæ* exhibit very great and very remarkable modifications. We shall be pardoned for these observations, when it is recollected that Linnæus himself, misled by analogy, included *Clivina* with *Tenebrio*: and such remarks are not addressed to the profound entomologist, but are intended to guide the student, who might be unable to satisfy himself for what reasons two insects so decidedly different in contour, should be included in the same family.

With the group called *Leistus*, Linnæus appears to have been unacquainted; and we wish to call the attention of the physiologist particularly to the Lip, which does not appear to us to have been before accurately delineated. The following are our British species.

1. *L. spinibarbis* *Fab.*, *Marsh.*—*cæruleus* *Lat.*, *Sturm.*—*pallipes* *Panz.* 89. 2.

Found during May, June, August and September, in sandy situations, under stones and dry leaves in woods.

2. *L. fulvibarbis* *Hgg.*, *Dej.*, *Nob.*

Independent of considerable differences of colour in this and the former species, our insect (a male of which is figured) is much smaller, and the thorax is more convex, and narrowed at the base: it is rarer, but occurs in Kensington Gardens, Battersea Fields, and other places round London, at the same periods as the first.

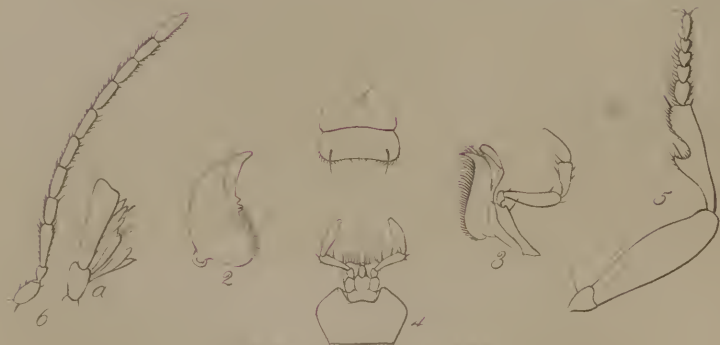
3. *L. spinilabris* *Panz.* 39. 11. *Fab.*—*brunneus* *Marsh.*—*rufescens* *Sturm.*—*fusco-ænea* *Panz.* 89. 3.

April, sandy places, Norfolk.

4. *L. rufescens* *Fab.*, *Lat.*, *Marsh.*—*terminatus* *Panz.* 7. 2.

Found during the spring in the neighbourhood of London: it is rarer than No. 3, from which it is distinguished by its black head and tips of the elytra.

The plant is *Neottia spiralis* (Ladies' Traces).



Drawn by J. Carter, July 4, 1885

BRACHINUS SCLOPETA.

The single-spotted Bombardier Beetle.

ORDER Coleoptera.

FAM. Carabidæ.

*Type of the Genus, Carabus crepitans Linn.*BRACHINUS *Web., Fab., Lat., Dej., Curt.*—*Carabus Linn., Fab.*

Antennæ inserted a little before the eyes, filiform, pubescent and 11-jointed, basal joint the stoutest, rather short and ovate, 2nd small obovate, 3rd long and clavate, 4th shorter than the following which are elongated, the apical joint being as long as the 3rd and rounded at the apex (6).

Labrum transverse, the angles quite round and ciliated, the centre concave (1).

Mandibles curved, one subtrigonal at the apex, tridentate at the centre of the internal margin, with the remainder ciliated to the base (2).

Maxillæ forming a long internal lobe curved and acute at the apex, above which it is ciliated as well as on the inside. *Palpi*, *internal* elongated, biarticulate, basal joint rather long and slender, 2nd nearly as long, a little stouter and slightly clavate; *external* long and 4-jointed, basal joint small, 2nd long stout and subclavate, 3rd and 4th shorter, the former clavate-truncate, the latter elongate-ovate (3).

Mentum rather large, rhombiform, truncated at the base, the sides rounded, excised before, forming 2 obtuse lobes, the centre a little convex. *Lip* oblong, the centre horny, anterior margin bisinuated and hairy. *Palpi* attached to 2 scapes, triarticulate, basal joint small, 2nd and 3rd long of equal length, the former clavate and a little bristly inside, the latter fusiform-truncate (4).

Head rather narrow and ovate: eyes small, but prominent and remote from the base. Thorax narrow, obcordate-truncate: scutellum small.

Elytra twice as broad as the thorax, broadest behind, and not covering the whole abdomen. Wings ample. Legs strong: thighs rather stout, especially in the male: tibiæ, anterior deeply notched and spurred: tarsi very bristly beneath, anterior a little dilated in the male, the basal joint ovate, 3 following cordate, gradually decreasing in size, terminal one clavate: claws rather long, acute and simple (5).

SCLOPETA *Fab.*—*Curt. Guide, Gen. 20. n. 4.**In the Cabinets of the British Museum, Mr. Dale, &c.*

SEVERAL of the Carabidæ have the power of ejecting an acrid fluid or gas from the apex of their abdomens in order to defend themselves from the attacks of their enemies, but in the Brachini each discharge is attended with a report and smoke: two that I found in September crepitated faintly; and in subsequent experiments I observed the vapour. They may be

stimulated to repeat the discharge several times by scratching their backs with a pin; and I have distinctly heard the report when they were dropped into a bottle of spirits of wine.

1. *B. crepitans* Linn.—Panz. 30. 5.—*immaculicornis* Dej. var.—Don. 14. 486. Reddish-ochre; 3rd and 4th joints of antennæ generally piceous, except at their tips; elytra green, bluish, or black, sparingly punctured, with about 8 elevated lines on each; abdomen black; 3 to $4\frac{1}{2}$ lines long.

From March to October on the shores of large rivers and the sea, also under stones and clods in fields: not uncommon at Hertford; Boxhill; Gravesend; Southend; Cobham, Surrey; Kimpton; Oxford; New Forest; Isles of Wight and Portland; Sherborne; Teignmouth; near Swansea, and Glamorganshire. It is remarkable that Mr. Paget has not found it at Yarmouth, nor Mr. Dale at Glanville's Wootton.

2. *explodens* Duft.—Sturm. D. F. tab. 177. A. Ferruginous; elytra somewhat smooth, cyaneous; antennæ with the 3rd and 4th joints as well as the abdomen fuscous: 2 to $2\frac{1}{2}$ lines. Dej.

Whether this be distinct from the foregoing I am not able to determine, but the British specimens I have seen appear to be only small black varieties of *B. crepitans*. It is said to have been taken in April at Southend; Portland and Swanage in June; Isle of Purbeck, September; also at Charmouth, Teignmouth, and Dawlish Warren.

3. *glabratus* Bonelli.—Dej. Icon. t. 8. f. 8. Ferruginous; elytra somewhat smooth, cyaneous, abdomen fuscous: $2\frac{1}{2}$ to 3 lines. Dej.

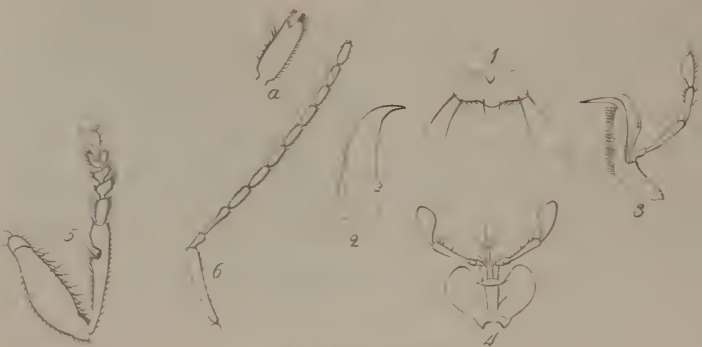
Of this I have never seen a British specimen, but it is said to have been taken at Ashburton and Dover in June.

4. *sclopeta* Fab.—Curt. B. E. pl. 554. Reddish-ochre, head and antennæ with a castaneous tint; elytra blue or greenish, with a long reddish stripe down the base of the suture nearly to the middle; minutely punctured and clothed with ochreous pubescence, the elevated lines very indistinct.

September, under stones, Devonshire, Dr. Leach; but most of the specimens were captured, I believe, by Mr. G. B. Sow-erby on the shore near Margate several years since.

Obs. On the 2nd and 3rd joints of one of the antennæ of the specimen dissected (fig. 6. a) were attached some lanceolate appendages, a few of them having a bundle of smaller ones at the apex; they were so firmly united that I could not separate them, and at first I thought they had been diseased and dilated hairs.

The Plant is *Rottbollia incurvata* (Sea Hard-grass).



454.

DRYPTA EMARGINATA.

ORDER Coleoptera. FAM. Carabidæ.

Type of the Genus, Drypta emarginata Fab.

DRYPTA Lat., Fab., Clair., Curt.—Cicindela Oliv.—Carabus Rossi, Mars.—Sowerby.

Antennæ inserted before the eyes, rather longer than the head and thorax, filiform, pubescent, and 11-jointed, basal joint as long as the head and clavate, 2nd short, 3rd longer and slenderer than the following which are oblong, the terminal joint having a short and a long obtuse compound spine at the apex (6 *a*, the terminal joint more magnified).

Labrum transverse, pocket-shaped, with a small semicircular lobe and 2 bristles at the centre of the anterior margin, which is furnished also with a few short bristles and 2 long ones at each angle (1).

Mandibles porrected, narrow, curved and acute at the apex, with a small bifid tooth inside towards the base and a notch beneath it (2).

Maxillæ slender, terminated by a long narrow lobe, very much hooked and acute at the apex, the internal margin ciliated with short and strong spines. *Palpi*, internal shorter than the lobe, very slender and composed of 2 joints of equal length, external long and 4-jointed, basal joint small, 2nd long subclavate, following much shorter, 3rd clavate and a little longer than the 4th which is much broader, being somewhat securiform (3).

Mentum suborbicular, being very narrow and concave at the base, anterior margin deeply excised, forming two obtuse lobes. *Palpi* triarticulate, rather long and attached to 2 slender scapes, basal joint short, 2nd long and clavate, 3rd nearly as long and hatchet-shaped. *Lip* small and trilobed, central lobe the longest, linear and producing 3 strong bristles (4).

Head subtrigonal slightly elongated before: eyes small but prominent.

Thorax not broader than the head, cylindric, obovate, truncated at the base, with the angles a little prominent: scutellum triangular. Elytra thrice as broad as the thorax, oblong-ovate, the apex slightly emarginate. Wings ample. Thighs incrassated. Tibiæ, anterior notched on the inside. Tarsi 5-jointed, very pubescent beneath, anterior slightly dilated in the male, basal joint oblong, 2nd and 3rd somewhat cup-shaped in the fore feet, 4th bilobed, 5th clavate. Claws bent and acute, (5, a fore leg).

EMARGINATA Fab.—Curt. Guide, Gen. 21. 1.—dentatus Rossi.—chrysostomos Sowerby.

In the Cabinets of the British Museum and Mr. Vigors.

ALTHOUGH *Drypta* is related to *Odacantha* (Plate 227.) it is easily distinguished from it by very important differences in the trophi, as well as by the bilobed penultimate joints of the tarsi, and the great length of the basal joint of the antennæ is a character not to be met with in any of our *Carabidæ*. A considerable similarity is observable in the labrum and maxillæ of our genus and *Cicindela*, but the mentum and labium as well as the apical joint of the antennæ, are totally different to any which have come under my observation, and the singular structure of the latter has never been noticed by any other author; it seems to be formed for fastening itself by its horns to an object, but whether it be sexual or not I am unable to determine.

There are only 8 or 10 species of this pretty genus known, and it is remarkable that they should be distributed to the remotest parts of the Old World, from Europe to Africa and the East Indies, and even New Holland. The only species inhabiting Great Britain is

D. emarginata Fab.—*Curt. Brit. Ent. pl.* 454.

Bright greenish blue, trophi and antennæ rufous, the latter with the apex of the 1st and 3rd joints, sometimes the middle only of the latter, black; eyes blackish: head and thorax covered with large and deep punctures, the latter with a strong channel down the back; elytra pubescent and minutely punctured, with 10 firmly punctured striæ on each, that next the scutellum abbreviated, but longer than usual; abdomen black above; legs ferruginous-ochre, tarsi slightly fuscous.

Specimens of this rare and handsome Insect have been taken in May and June near Hastings, and at Feversham in Kent; it is stated also by Mr. Hope to have been taken under marine rejectamenta on Leith sands near Edinburgh. It is found in moist woods and marshy places at the roots of Sallows and under stones; it is very rare in the neighbourhood of Paris, but abundant near Bordeaux and Castelnau in the South of France.

The Plant is *Hippophae rhamnoides* (Sea Buckthorn), communicated by James Paget, Esq., of Yarmouth, Norfolk.



From the collection of the British Museum, London, Sept. 1, 1895

ODACANTHA MELANURA.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Attelabus melanurus Linn.

ODACANTHA Payk., Fab., Bonel., Clairv., Gyll., Dej.—Carabus Oliv., Sower.—Attelabus Linn., Don.—Cicindela? Panz.

Antennæ inserted before the eyes at the base of the mandibles, rather long slender and filiform, pubescent except at the base, 11-jointed, basal joint ovate robust, 2nd minute, 3rd and remainder as long as the 1st, gradually increasing in size to the last which is attenuated (6).

Labrum transverse-quadrate, slightly concave before, with a few short and long bristles, the angles rounded (1).

Mandibles porrected, small and slender, slightly curved and acute, sinuated towards the base, one having a small tooth above the middle (2).

Maxillæ curved and acute, the internal edge furnished with bent teeth and hairs.

Palpi, *internal* robust, biarticulate, basal joint longer than the 2nd which is subovate; *external* 4-jointed, basal joint minute, 2nd robust, subovate, 3rd shorter, clavate, 4th longer fusiform with a vesicle at the apex (3).

Mentum transverse, emarginate, the centre producing an obtuse triangular tooth, the lobes on each side dentated. *Labium* long quadrate, producing 2 long bristles in the centre and a slender lobe on each side. *Palpi* robust, attached to long scapes, triarticulate, basal joint small, 2nd long clavate, 3rd a little longer subfusiform terminated by a vesicle (4).

Head much broader than the thorax, ovate having a short neck. Eyes prominent. Thorax slender cylindric. Scutellum minute. Elytra shorter than the abdomen, depressed, twice as broad as the thorax, rather narrowed towards the base and truncated at the extremity, the angles rounded. Wings ample. Legs long. Thighs robust. Tibiæ spurred, anterior emarginate. Tarsi 5-jointed, penultimate joint cordate, terminal joint the longest. Claws long and bent (5, a fore leg).

MELANURA Linn. Syst. Nat. l. 2. p. 620. n. 6.—angustatus Fab., Oliv., Sow.

Smooth shining, ochreous orange, mandibles castaneous. Antennæ black, excepting the 3 basal joints. Head and thorax green, the latter sparingly, but strongly punctured, with a channel down the centre and a lateral carina. Elytra with a large oval cyaneous black spot at the apex, each having an abbreviated line of minute punctures next the suture and 7 extending the whole length; between the 3rd and 4th are 3 foveæ and another between the 6th and 7th. Abdomen piceous above, green beneath. Thighs and tarsi black at their apex.

In the Author's and other Cabinets.

ODACANTHA is distinguished from Drypta, to which it is nearest allied, by the subfusiform terminal joint of the palpi, the quadrate labrum, the triangular lobe of the mentum, the simple labium, the shortness of the basal joint of the antennæ, and the entire penultimate joint of the tarsi. In describing *Polistichus*, I observed that it was nearly related to *Cymindis* (*Tarus Clairv.*), and am at a loss to account for the introduction of it between *Odacantha* and *Drypta*; such an arrangement must be entirely artificial, and cannot be justified, since it leads to error instead of a correct acquaintance with nature.

The genus before us contains but one British species.

O. melanura *Linn.*

This elegantly formed and lively coloured insect is an inhabitant of reedy fens. It may be found by shaking the reeds that have been cut down and tied in bundles for thatching: those nearest the water's edge, or even floating, being the dampest, are their most favourite situations; and there in dull weather they conceal themselves: they are also found amongst the fragments of reeds left after an overflow of marshes; but when the sun shines they take wing and are very active.

O. melanura was first discovered, I believe, at Cromlyn Bog, South Wales, by Joseph Woods, Esq., and Mr. Sowerby; and about the same time John Dere, Esq., and Professor Hooker met with it on the banks of the Yare in Norfolk. It has since been taken at Horning, Reedham, and Fakenham, in the same county; also at Whittlesea Mere; and last May Mr. Hewitson directed me to a spot on the borders of a small lake at Benacre, Suffolk, the property of Sir Thomas Gooch, Bart., where they were tolerably abundant: it is found also in June.

The plant is *Potentilla anserina* (Silver Weed or Moors Corn).



Pub. by J. Curtis London Aug. 1828

POLISTICHUS FASCIOLATUS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus fasciolatus Rossi.

POLISTICHUS Bon., Lat., Dej.—Zuphium Lat.—Galerita Fab., Clairv.
—Carabus Ross., Oliv.

Antennæ inserted at the base of the mandibles, considerably before the eyes, robust, filiform, very pubescent, 11-jointed, basal joint long and stout, 2nd short, 3rd longer, the remainder of the same length, excepting the last, which is longer and subconical (6).

Labrum transverse-quadrate, angles rounded, anterior margin slightly concave and producing a few long bristles (1).

Mandibles rather small, slightly bent, acute, crenated on the internal margin at the base (2).

Maxillæ bent acute, ciliated internally with bristles. *Palpi*, internal biarticulate, compressed, basal joint subclavate, 2nd elongate-ovate, slightly curved, external 4-jointed, basal joint small, 2nd long robust, 3rd short, obtrigonal, 4th long robust, oval-truncate (3).

Mentum semicircular, emarginate, with a triangular tooth in the centre. *Labium* small, producing a narrow lobe on each side and 2 bristles at the middle. *Palpi* attached to 2 scapes, triarticulate, basal joint small, bent, 2nd long subclavate, pilose, 3rd robust, clavate-truncate, pubescent (4).

Head ovate, neck distinct. Eyes small and prominent. Thorax subcordate, truncated at the base and slightly produced, the angles acute. Scutellum very minute. Elytra depressed, elongate-quadrate, truncate. Abdomen not entirely covered by the elytra. Wings ample. Legs short robust, especially the 1st pair. Tibiæ spurred, anterior deeply notched. Tarsi 5-jointed, anterior with the basal joints a little dilated in the males. Claws simple (5, a fore leg).

FASCIOLATUS Ross. Faun. Etrusc. 1. 223.—Fab. Syst. Eleut. 1. 216. 9.

Depressed, shining, covered with short ochreous pubescence. Head and thorax castaneous, strongly but sparingly punctured, the latter with a shallow channel down the centre and a fovea at each posterior angle. Elytra pitchy black with an oblong ochreous stripe on each, not extending to the apex, which is edged with the same colour; rather thickly and minutely punctured, with 7 punctured striæ on each. Antennæ, abdomen and legs ochraceous, somewhat inclining to ferruginous.

In the Author's and other Cabinets.

POLISTICUS appears to be nearly related to Cymindis, from which it is distinguished by its labial palpi, which are clavate, not securiform, by the greater length of the basal joint of the antennæ, by its simple claws, &c.

Many insects are evidently periodical as well as local; it is therefore very possible that the rarest of our species may occasionally be produced in abundance; the Carabidæ alone will afford sufficient examples to substantiate our assertion: for instance, until lately British specimens of *Omaseus aterrimus*, *Nebria livida*, and *Licinus silphoides*, existed only in one or two cabinets; the first of these has, however, appeared in Norfolk, Cambridgeshire and Ireland, in profusion; the second has occurred during the last year on the Yorkshire coast in sufficient plenty to supply the principal cabinets; and the third has been found in Kent and Surrey, and even in the streets of London during the last and two or three previous years. In addition to these, I have the pleasure of recording *Polisticus fasciolatus*, as recently discovered on the coast of Suffolk; only four or five specimens were previously known to have been taken, which were from Cley in Norfolk, and Southend, Essex.

For specimens and the following memorandum relating to the economy of this valuable beetle, I am indebted to William C. Hewitson, Esq., of York.

“Taken April 13th and 16th, 1828, under a stone heap upon the sea-shore, above high-water mark near Southwold, in great profusion, clustering close together, and very active when disturbed, burrowing in the sand, and when put into a bottle fighting so desperately as to bite each other quite in pieces; and so local, that there were none to be found under other stone heaps though within a few yards of the place.”

On the 17th of May I had the pleasure of seeing it alive at the above place; and the plant *Arenaria peploides* (Sea Sandwort) was in flower there at the time.



by Charles Linton Nov. 1. 1870

TARUS BASALIS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus humeralis Fab.

TARUS *Clairv.*—*Cymindis Lat., Bon., Panz., Leach, Gyll., Sturm.*—*Anomæus Fisch.*—*Lebia Duft.*—*Carabus Fab.*

Antennæ inserted considerably before the eyes at the base of the mandibles, long filiform, pubescent and pilose, 11-jointed, basal joint scarcely longer than the 3rd, 2nd short, 3rd and following of nearly equal length, terminal joint subconic (6).

Labrum transverse oblong, anterior angles rounded, producing a few bristles (1).

Mandibles rather long and slender, considerably hooked and acute, with a notch near the base, one having a tooth near the middle (2).

Maxillæ slender bent and acute, ciliated internally with strong bristles. *Palpi*, *internal* formed of 2 joints of equal length, basal one clavate, terminal subovate : *external* long, 4-jointed, basal joint minute, 2nd and 4th long, of equal size, the former subclavate, the latter cylindric, the 3rd shorter clavate-truncate (3).

Mentum deeply emarginate, lateral lobes acuminate, producing a strong simple rounded tooth in the centre. *Labium* oblong, truncate, rounded at the sides and producing 2 bristles in the middle. *Palpi* long securiform in the males, arising from scapes triarticulate, basal joint minute, 2nd long subclavate, 3rd very large obtrigonal, coriaceous at the apex (4).

Head ovate, slightly narrowed behind. Thorax broader than the head, obcordiform-truncate, posterior margin convex, the angles acute. Scutellum small, not separating the Elytra which are depressed and broader than the thorax, somewhat truncate and slightly emarginate at the apex and not covering the abdomen. Wings sometimes rudiments only. Tibiæ, anterior notched, spurs small. Tarsi 5-jointed, simple, anterior scarcely dilated in the males, the underside very pubescent. Claws denticulated beneath (5, a fore leg).

BASALIS *Gyll. v. 2. p. 174. 3.*—*punctata Bon., Dej.*—*scapularis And.*

Pitchy black, rather shining, slightly velutinous. Terminal joint of labial Palpi not securiform. Antennæ and trophi castaneous. Eyes black. Head and thorax covered with coarse punctures, the latter with a channel down the centre and an indistinct fovea at the posterior angles, the margins subcastaneous. Elytra punctate, with a considerable space at their base and a narrow external margin, castaneous ; 8 punctured striæ on each, the external one with several stronger impressions. Wings rudimentary. Legs ochraceous.

In the Author's and other Cabinets.

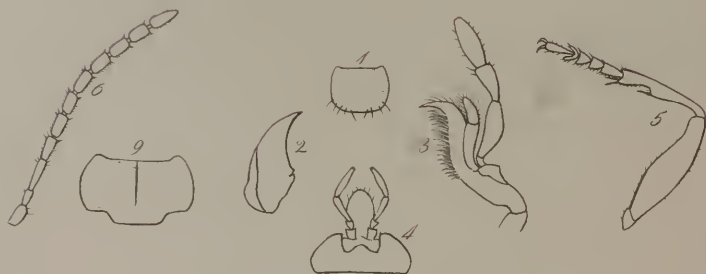
THE few species that compose the genus *Tarus* vary considerably in their structure, some having ample wings, whilst others have the smallest rudiments only; the securiform labial palpi are also said to be a sexual character, and in *T. basalis* they are cylindrical in both, thereby making a near approach to *Polistichus*.

I must here be allowed to observe, that had not the name of *Tarus* been given by Clairville long since to this genus, I should not have dropped the well known one of *Cymindis*, although it signifies a *species* of Hawk; because were such a rule to be adopted, we should be compelled to abandon the names of many of the established genera of Linnæus.

The following have been recorded as natives of Britain.

1. *humeralis* *Fab., Oliv.—Lat. and Dej. Icon. t. 11. f. 2.—Sturm. pl. 164.*—Taken near Swansea, Glamorganshire, and at Cuckfield in Sussex, by Dr. Leach and the Rev. F. W. Hope.
2. *Homagricus* *Duft.—Lat. and Dej. Icon. t. 11. f. 4.—Sturm. pl. 165. B.*—I took a single specimen under a stone in a gravel-pit on Witchingham Heath, Norfolk, in 1810.
3. *angularis* *Gyll.—Lat. and Dej. Icon. pl. 12. f. 1.—lunaris? Duft.—Sturm. pl. 166. A.*—Taken at Swansea.
4. *macularis* *Mann.—Dej. Coleop. v. 1. p. 212. n. 13.*—The locality of this species has not transpired: Scotland is the most likely habitat, as it is found in Sweden and Finland.
5. *basalis* *Gyll.—Curt. Brit. Ent. pl. 235.*—For specimens of this fine addition to our *Carabidæ*, I am indebted to Mr. Edward Hobson: they were taken in April near Halifax, Yorkshire, I believe on Midgley Moor; and about the same time others were captured by L. Rudd, Esq. on the shores of the river Tees.

Betonica officinalis (Wood Betony) is represented in the plate: the plant erroneously called by this name at folio 202, it must be remembered, is *Prunella vulgaris*.



Pub. by S. Curtis, London, Vol. 1, 1825

LEBIA TURCICA.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus crux-minor Linn.

LEBIA *Lat., Bonelli, Panz., Leach, Gyl. Carabus Linn., Fab., Oliv.*

Antennæ inserted before the eyes, growing slender towards the base, 11-jointed, the 3 first joints naked, the remainder pubescent, with a few bristles, 1st joint not very large, 2nd small, 3rd the longest, 7 following oblong, terminal joint longer than the preceding, ovate-elongate (f 6).

Labrum somewhat orbicular or quadrate, sides membranaceous, a few hairs upon the anterior margin (1).

Mandibles slender, bent, acute, naked, with 2 minute teeth at the base on the internal side (2).

Maxillæ small, slender, bent, acute, ciliated on the internal edge.

Palpi 2, internal robust, not longer than the maxilla, 2-jointed, 1st joint long, clavate, 2nd short somewhat ovate hairy; external robust long, 4-jointed, 1st joint minute, 2nd long, dilated in the middle, 3rd shorter clavate, 4th as long as the 2nd, ovate-elongate, scarcely truncate (3).

Mentum transverse, emarginate, centre produced, rounded.

Palpi 3-jointed, basal joint minute, 2nd long clavate, 3rd spheci-form truncated. *Labium* long, projecting beyond the 2nd joint of the palpi, rounded, slightly hairy (4).

Thorax scarcely broader than the head, transverse, nearly straight before, with the anterior angles rounded, sides margined, greater portion of the posterior margin produced in a transverse lobe covering the neck (9). *Body* very much depressed. *Elytra* shorter than the abdomen, abruptly truncated. *Wings* long. *Anterior tibiæ* notched. *Tarsi* 5-jointed, 4 first joints short, the basal one rather the longest, the 4th bilobed, terminal joint longer, clavate (5 a fore leg).

TURCICA *Fab. Ent. Syst. t. 1. pars 1. p. 161. n. 161.*

Black shining: eyes gray: mouth, thorax, neck, scutellum, antennæ and legs ferruginous or brick colour; a lunular spot upon each elytron at the base of the external margin, extending nearly to the middle, a narrow margin round and 2 minute spots at the posterior angles of the elytra ochraceous; beneath ochraceous and brick colour, the margins of the abdomen and the segments black. Head rugulose. Thorax with fine transverse lines and a channel down the middle. Elytra emarginate at the apex, with an abbreviated finely punctured stria next the scutellum and 8 long ones extending the whole length.

In the Cabinet of the British Museum.

THE lobe of the thorax that covers the neck (which is not easily detected unless it be detached from the body, on account of a transverse impression extending across), and the bifid penultimate joint of the tarsi, are strong characters to mark the genus *Lebia*, which contains 2 British species. The rare and beautiful one figured is a native of France and Italy; and the specimens in the British Museum were taken, it appears by a memorandum of Dr. Leach's, near Oakhampton House, Somersetshire.

Carabus crux-minor Linn., the other species found in our country, although less rare, is very seldom met with. It is said to be taken under stones in June; in August also it has been found upon trees in Coombe Wood; and I remember Mr. Brightwell of Norwich taking one out of a tan-pit at Ly-mington, Hampshire, where it had probably been conveyed with the bark: This insect is figured by Olivier, *tab. 4. fig. 41. a. b.*; and by Panzer, *fascicle 16, plate 2.*

Anemone nemorosa (Wood Anemone) is figured with the insect.



Painted by J. Gussone - London 1. v. 1864

LAMPRIAS is closely allied to *Lebia*, which was illustrated in our 87th Plate; it is however distinguished by the thorax, which is narrowed at its posterior angles; the body is narrower and more depressed, the wings are short, the labrum and labium are more quadrate, the mentum is broader, and the apex of the labial palpi more truncated.

Four species of this genus have been recorded as British, but two of them are probably varieties.

1. *L. cyanocephalus*, *Curtis Brit. Ent. pl.* 282.

Obs. The specimen figured and described is a variety; the head and elytra are generally deep cyaneous, sometimes inclining to green.

The beautiful specimen represented in the plate was found in the flower of a primrose, the middle of last April, at Crabbe Hill near Dover, and is in the Cabinet of Mr. R. L. Leplastrier. It has been seen as early as March in Yorkshire, and in June it frequents the Broom at Darent, Windsor and Ripley near London, and at Netley in Shropshire; and in July it has been observed under moss on oaks, at Kimpton, Hants.

2. *L. nigratarsis* *Leach, Steph.*

Cyaneous-green. Thorax rufous. Antennæ and legs fuscous, the underside of the basal joint of the former reddish, and the base of the thighs rufous.

This is supposed to be a variety of the first; it has been found on the broom at Windsor and Dover, in June.

3. *L. chlorocephalus* *Ill.—Sturm D. F. pl.* 167, *A.—cyanocephalus Mar.—Don.* 3. 86.—*Panz.* 75. 5.

Cyaneous-green; antennæ fuscous, the basal joints, thorax, postpectus, and legs, rufous; tarsi black.

Also found in May and June upon the broom, under bark, stones, and heaps of turf, and in moss: it has been taken in Epping Forest, Coomb-wood, and Darent, in Norfolk, at Newcastle, &c.

4. *L. rufipes* *Steph. Dej.?*

Blackish blue. Elytra cyaneous, thorax and legs rufous.

Dejean in his description says, "the feet, and even the tarsi, are of the colour of the thorax." It is therefore probable that the specimen described as British, with "the tarsi somewhat more obscure," is a variety only of the former one. It was taken in the New Forest, in June.

The plant is *Primula elatior* (Oxlip).



Pl. Ind. Lib. Jan. 1856

DEMETRIAS MONOSTIGMA.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus atricapillus Linn.

DEMETRIAS *Bonelli, Sam.*—*Rizophilus Leach.*—*Dromias Germ.*—*Lebia Lat., Gyll.*—*Carabus Linn., Fab.*

Antennæ inserted before the eyes at the base of the mandibles, gradually increasing in thickness to the apex, slightly pubescent, 11-jointed, basal joint the thickest, 2nd small, the following of nearly equal length, terminal joint as long as the 1st, nearly as robust and subovate (fig. 6).

Labrum quadrate, slightly emarginate and ciliated (1).

Mandibles slightly bent, acute, naked; one with a tooth at the base, the other with 3 at the base and one in the middle (2).

Maxillæ bent, horny and acute at the apex, ciliated with rigid bristles internally.

Palpi 2, internal, compressed, 2-jointed, terminal joint short, subovate: external long robust, 4-jointed, 1st joint short, 2nd long clavate, 3rd short, 4th elongate conic, terminated by a vesicle (3).

Mentum transverse, sides lobed, centre obscurely bifid. *Palpi* long, robust, fixed to a short scape, 1st joint subclavate, 2nd subovate, 3rd ventricose, elongate, ovate, terminated by a small vesicle. *Labium* slightly emarginate, membranous at the edges. (4).

Head oval, narrowed and produced behind. Thorax cordiform, truncated before and behind, margined, not broader than the head. Abdomen much broader than the thorax, depressed. Elytra elongated, not quite so long as the abdomen, and somewhat narrowed towards the base. Wings sometimes with rudiments only. *Tibiæ* anterior notched. *Tarsi* 5-jointed, basal joint the longest, especially in the hind legs, 4th joint large bilobed. Claws simple (5, a fore leg).

Obs. The dissections are made from *D. monostigma*.

MONOSTIGMA *Leach.*—*Sam. p. 156.*—*unipunctatus Germ. Ins. Spec. v. 1. p. 1. n. 2.*

Head black shining. *Palpi* pale. *Mandibles* and *antennæ* ferruginous, the latter pale at the base. Thorax dull orange, channelled down the middle, with an impression at the posterior angles. Elytra with 7 obscure striæ on each ochraceous, with a large deep brown spot in the middle near their apex, which runs half way up the suture. Wings rudiments only. Abdomen ochraceous. Legs and underside, excepting the head, pale ochre.

In the Author's and other Cabinets.

THE group to which our insect belongs, like the others of Mons. Latreille's divisions of his genus *Lebia*, has been constituted into a genus named *Demetriās* by Professor Bonelli: it may be at once distinguished from *Dromius* of the same author, to which it is closely allied, by the bilobed penultimate joints of the tarsi; and from *Lebia* it differs essentially in many respects, as may be seen by comparing the present dissections with those of plate 87, where that genus is illustrated.

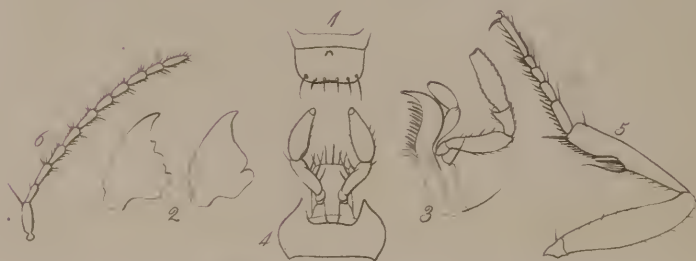
Demetriās appears to be exclusively confined to Europe; and at present contains but 4 species, all of which have been confounded under the name of *Carabus atricapillus*: 2 only of these have at present been recognized as British, viz. *D. atricapillus* and *D. monostigma*: the former pretty insect may be found almost all the year round, under the bark of trees; the latter, which we have figured under the name that it received from Dr. Leach, and which accompanies the description of it in Samouelle's *Entomologist's Compendium*, published several years before Germar's work appeared, was first detected at Swansea, and was formerly considered a rare insect in this country, but has lately been taken in abundance on the coast of Norfolk by the Rev. T. Skrimshire, and at Whittlesea Meer the end of July by Mr. Bentley and Mr. Chant. It inhabits the roots of grass, and conceals itself on the sea-coast under *rejectamenta*.

The plant is *Salicornia herbacea* (Marsh Samphire).



of Ward & H. Co

Erodium cicutarium, var.



Pl. by J. Curtis London Oct. 1. 1828

DROMIUS SPILOTUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus 4-maculatus Linn.

DROMIUS *Bon., Leach, Sam., Lat., Dej., Sturm.*—Dromius *Gyll.*—*Lebia Lat., Clair., Gyll.*—Carabus *Linn., Fab., Marsh., Panz.*

Antennæ inserted before the eyes at the base of the mandibles, filiform, pubescent excepting the 3 first joints, 11-jointed, basal joint elongate-ovate, robust, 2nd not very short, 3rd and remainder nearly of equal length and pilose, terminal joint elongate-conic (6).

Labrum transverse, anterior angles rounded, margin slightly concave, producing a few bristles (1).

Mandibles subtrigonal, slightly curved at the apex and acute, one sinuated on the internal margin, the other notched near the base (2).

Maxillæ bent and acute at the apex, ciliated internally with rigid bristles. *Palpi*, internal broad compressed biarticulate, basal joint clavate, 2nd subovate, scarcely truncate: *external* long and stout, 4-jointed, basal joint small, 2nd long, robust and subclavate, 3rd short somewhat bell-shaped, 4th the size of the 2nd elongate-ovate truncate (3).

Mentum transverse-oval, deeply emarginate, sides acuminate.

Labium oblong, membranous and pubescent. *Palpi* rather large arising from scapes, triarticulate, basal joint minute, 2nd and 3rd of equal length, the latter robust, subovate, pubescent, terminated by a vesicle (4).

Head slightly produced behind. Thorax obcordate or subquadrate, margined, broader than the head. Scutellum small triangular. Elytra depressed, truncate and slightly emarginate. Wings ample or rudimentary. Abdomen obtuse at the apex, extending beyond the elytra. Legs rather long and slender. Tibiæ producing minute spurs, anterior emarginate. Tarsi nearly as long as the tibiæ producing rigid bristles beneath, 5-jointed, basal joint not so long as the terminal in the anterior pair, penultimate not bilobed. Claws simple (5, a fore leg).

SPILOTUS *Zieg.*—*Dej. Spec. Coleop.* 1. 246. 16. *Sturm. pl.* 170. C.

Black, smooth, shining, very finely shagreened. Trophi and basal joint of antennæ lurid. Thorax obcordiform, truncated anteriorly, and rounded behind, the posterior angles slightly produced and reflexed, a deep channel down the centre. Elytra semitransparent, dull æneous fuscous with an obscure pale ochreous spot on each shoulder and 8 obscurely punctured shallow striæ, with 2 foveæ on the 3rd from the suture. Wings ample. Legs dirty ochre, darkest at the apex; thighs piceous.

In the Author's Cabinet.

THE short and broad mandibles, the broad and truncated apex of the external maxillary, and the small basal joint of

the labial palpi, the simply emarginate mentum, the long 2nd joint of the antennæ, and the simple tarsi,—are sufficient characters to distinguish our genus from *Demetrius* (folio 119).

In the following list the British species are arranged according to their affinities: the divisions that have been proposed, founded on the presence or absence of the wings, being useless, since the same species in some instances have, and in others have not, wings.

1. *D. linearis* Oliv.—*Dej. Icon. t. 14. f. 5.*—In hedges and under bark of trees all the year, and in the nests of bees.
 2. *meridionalis* *Dej.*—*agilis* Panz. 75. 11.—April to July, common about London, in Norfolk and Essex.
 3. *agilis* Fab.—*atricapillus.* Panz. 30. 7.—*var. rufescens* Marsh.—January to July, under bark of Fir-trees, &c., in company with the last.
 4. *4-maculatus* Linn.—Panz. 75. 10.—In the summer under stones, and the bark of trees; in the winter, amongst moss, &c.
 5. *4-notatus.* Panz. 73. 5.—*puncto-maculatus* Marsh.—January to July, under bark of Oaks, Kensington Gardens, Coomb Wood, Norfolk, Dorset, Essex, &c.
 6. *melanocephalus* *Dej. Icon. t. 14. f. 6.*—*pusillus* Sam.—*pallidus* Sturm.—January to July, Gravel Pits, Coomb Wood, &c., under bundles of reeds, Covehithe, Suffolk.
 7. *Sigma.* *Dej. Icon. t. 14. f. 7.*—Mr. Bentley, Whittlesea Mere; at Dorking in April, and on Lardew Mire near Carlisle, T. C. Heysham, Esq., 29th August.
 8. *fasciatus* Payk., Fab.?—Sturm. 169. C.—Southend and Devon in the spring, and under stones at high-water mark at the back of the Isle of Wight, in August.
 9. *notatus* Steph.—Southend, in the spring.
 10. *spilotus* *Dej.*—*Curt. Brit. Ent. pl. 231.*—I took the specimen figured many years back in Norfolk, and named it at the time *D. humeralis*; but it is evidently a variety of the *D. spilotus* of Dejean.
 11. *impunctatus* Steph.—March, Lawrence Waltham, Berks, Mr. Hanson.
 12. *glabratus.* *Dej. Icon. t. 15. f. 3.*—Sturm 171. C.—Under stones, sandy heaths, Southend, and near London.
 13. *femoralis* Marsh.—*pallipes* *Dej. ?*—This is the only species I do not possess.
 14. *foveolus* Gyll.—*punctatellus* *Dej. Icon. t. 15. f. 7.*—July every where, under stones, in sand and gravel pits, &c.; in winter under bark of trees and in moss.
 15. *maurus.* Sturm 171. D.—Lawrence Waltham, Berks, Mr. Hanson; Dorking; &c.
 16. *truncatellus* Linn.—Panz. 75. 2.—Aug., under stones, sandy and gravelly places, England and Ireland.
- Erodium cicutarium* var. (Hemlock Crane's Bill).



Painted by J. Curtis in London Aug 1827

CLIVINA COLLARIS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.—
Scaritidæ McL.

Type of the Genus *Tenebrio* Fossor Linn.

CLIVINA Lat., Clairv., Panz., Leach., Dej.—*Scarites* Fab., Oliv.—
Carabus Marsh., Herbst.—*Tenebrio* Linn.

Antennæ inserted before the eyes in a fissure on each side the head, 11-jointed, pubescent excepting the first 2 joints, basal joint the longest robust, 2nd slender scarcely longer than the 3rd which is pear-shaped, the remainder moniliform, the terminal joint subovate (fig. 6).

Labrum subquadrate, narrowed a little at the base, anterior angles rounded, producing strong bristles, some of them dilated at the apex (1).

Mandibles porrected, but not very large, bent, not very acute, having 3 or 4 teeth on the internal side (2).

Maxillæ long and slender, internal lobe dilated on the outside, ciliated with strong bristles on the inside, bent and terminated by a subulate tooth. *Palpi* 2, terminated by vesicles; internal biarticulate, 1st joint clavate, 2nd attenuated; external long and robust, 4-jointed, basal joint slender bent, 2nd thick subovate, 3rd subclavate, 4th the longest attenuated to the apex (3).

Mentum large semiorbicular, emarginate before, producing a large lobe in the centre. *Lip* small producing a narrow lobe on each side. *Palpi* long and robust, attached to 2 long scapes, 3-jointed, basal joint small, 2nd clavate, 3rd the longest, subfusiform, slenderest at the apex which produces a vesicle (4).

Head small, neck distinct. Eyes small lateral. Thorax broader than the head, quadrate, slightly depressed, narrowed at its base. Coleoptera broader than the thorax elongate ovate. Wings ample in one species, short and small in the other. Scutellum minute, attached to the peduncle of the abdomen which is considerably elongated. Legs short. Thighs, anterior very robust. Tibiæ, anterior dilated, strongly dentated and spurred, emarginate on the inside, the others spurred, the 2nd pair producing a strong external spine above the apex. Tarsi alike in both sexes, slender 5-jointed, anterior the shortest. Claws small. (5, a fore leg.)

COLLARIS Herbst's Arch. tab. 29. f. 15.—*sanguinea* Leach's MSS.

Shining. Mandibles and antennæ ferruginous. Head and thorax blackish brown, the former castaneous on the crown, with a small deep impression between the eyes, the latter with a transverse impressed line near the anterior margin and a deep channel down the middle. Elytra and legs pale castaneous, the former sometimes brownish in the disk below the middle, each elytron with 8 punctured striæ, the 3rd impressed with 4 larger punctures and the marginal striæ deeply punctured. Wings long and ample. Beneath black variegated with castaneous.

In the Author's and other Cabinets.

ALTHOUGH the Baron Dejean has united two groups to form the genus *Clivina*, we shall not hesitate to adopt the division of them pointed out by Panzer and followed by Leach, and also Latreille in his *Familles Naturelles*, by which means the majority will be comprised in the genus *Dyschirius*, from which *Clivina* is distinguished by a more quadrate and less globose thorax, and by more completely digitate tibiae, as well as oral characters, which we shall point out when we arrive at their illustration.

Our insects no doubt burrow in moist sandy situations, for which purpose they are furnished with a small head, a very strong thorax, (capable of very extensive motion, from its being attached to a peduncle,) and digitate anterior tibiae.

The only two species known to inhabit Europe are natives of this country, and were first separated by Herbst. They have however been since confounded by Gyllenhal and Dejean; but our friend Mr. Bennett has pointed out a character which, independent of colour or size, will at once define the species, one having long wings formed for flying, the other such short wings that they cannot possibly enable the insect to fly. This latter

1. *C. fossor* Linn.—*arenarius* Fab., Panz., 43. 11.—*distans* Marsh.

is a common insect in sandy situations, under stones and upon marshes after floods amongst rejectamenta, throughout the country, during the months of March, April and May.

2. *C. collaris* Herbst., Nob.

is a more local species, confined apparently to the neighbourhood of London, being abundant in the gardens at Lambeth and on the shore of the Thames at Battersea, from April to the end of June. It is a smaller insect than *C. fossor*; and as we find some with, and others without the large brown spot towards the apex of the elytra, we are disposed to consider it a sexual distinction, the former being we suspect the *C. discipennis* of Megerle. We have also found in Norfolk two pale varieties of *C. fossor*, which appeared to be immature, and these may probably be the *C. discicollis* of the same author.

The plant is *Galeopsis Ladanum* (Red Hemp-Nettle).



DYSCHIRIUS INERMIS.

ORDER Coleoptera. FAM. Carabidæ Lat. Scaritidæ MacL.

Type of the Genus, *Scarites thoracicus* Panz.

DYSCHIRIUS Panz., Sam., Steph., Curt.—*Clivina* Gyll., Dej.—*Scarites* Fab., Panz.—*Carabus* Mar.

Antennæ inserted before the eyes, close to the base of the mandibles, not so long as the thorax, slightly thickened towards the apex, pubescent (excepting the 1st and 2d joints) and pilose; 11-jointed, basal joint robust, ovate-truncate, 2nd as long but slender, 3rd shorter, 4th shorter than the remainder, moniliform, cup-shaped, the terminal joint nearly as large as the 1st and subconic (6).

Labrum pocket-shaped, narrowed at the base, anterior margin very concave, furnished with a few bristles, angles rounded and producing a few spiny bristles (1).

Mandibles porrected, slender, curved and pointed, one having a minute tooth on the inside near the base (2).

Maxillæ forming a long lobe rounded at the apex and ciliated with hair, the internal margin with curved spines. *Palpi*, internal longer than the maxillary lobe, biarticulate, basal joint clavate, 2nd slender; external large 4-jointed, basal joint minute, 2nd large and dilated, 3rd small subobconic, 4th scarcely larger than the 2nd reverse pear-shaped (3).

Mentum transverse-oblong, not very deeply emarginate, the tooth in the centre triangular, the lateral lobes thin and obtuse.

Palpi long, attached to two scapes, triarticulate, basal joint minute, 2nd and 3rd long, of equal length, the former subcylindric, producing a few bristles, the latter large reverse pear-shaped. *Labium* oblong, furnished in the centre with 2 bristles (4).

Head rather small. Eyes prominent. Thorax somewhat ovate, narrowed and truncated behind, but not covering the peduncle of the abdomen. Scutellum minute. Elytra linear oval semicylindric. Wings very ample. Legs short, anterior robust: thighs incrassated: tibiæ, anterior furnished with a long spine at the apex, sometimes with smaller ones below; a long notch on the inside producing a spine at the lower part and a larger one above and ciliated with spiny bristles: tarsi alike in both sexes, 5-jointed, basal joint scarcely longer than the terminal, three intermediate ovate. Claws distinct and hooked (5).

INERMIS Curtis's Guide, Gen. 32. n. 1.

Shining bluish black; robust. Trophi and antennæ ferruginous, the latter blackish towards the apex. Thorax with a transverse channel before and a deep one down the middle with a transverse row of punctures at the base. Elytra ovate with 8 punctured striæ on each, the 3rd from the suture bearing 3 larger points. Legs castaneous, the thighs darker. Anterior tibiæ terminated by 2 strong spines, the outer one being rather the largest and incurved.

In the Author's Cabinet.

It will only be necessary to refer to the difference of form in the mandibles, the rounded lobe of the maxillæ, and the dilated terminal joint of the palpi, to show that there is sufficient ground for separating this group from *Clivina* (pl. 175).

The insect dissected was *D. fulvipes*? and the following are British species.

1. *D. inermis* *Curtis's Brit. Ent. pl. 354.*

I have had a single specimen of this insect several years, but have no recollection where it was taken. It is the largest and stoutest of the genus, being two lines and a half long, and the anterior tibiæ are not denticulated externally. The striæ and six points are strongly marked, and the former are continued to the apex.

2. *D. nitidus* *Dej. Spec. Col. 1. 421. 9.—æratatus Ste.* Mr. Haliday thinks his specimens, captured on the banks of pools near Holywood in the county Down, are the same as *D. nitidus*: taken also in Yorkshire and Norfolk.

3. *D. politus* *Dej. 1. 422. 10.* Norfolk and Suffolk.

4. *D. cylindricus* *Dej. 1. 423. 11.* Norfolk; and under rubbish on the sea-shore, Swansea, Mr. J. G. Jeffreys.

5. *D. æneus* *Zieg. Dej. 1. 423. 12.* Mr. Haliday near London, and Mr. Westwood on a dry bank at Walham-green, in June.

6. *D. punctatus* *Dej. 1. 424. 13.* I took a single specimen in the Isle of Wight in August.

7. *D. pusillus*? *Dej. 1. 425. 15.* My specimens are too large for Dejean's insect. One I took in Norfolk the 8th July, the other was captured by the late Mr. E. Hobson on the sea-beach near Formby.

8. *D. fulvipes*? *Dej. 1. 425. 16.* May, under the Cliff, Covehithe, Suffolk.

9. *D. thoracicus* *Fab. Dej. 426. 17.* Taken with last.

10. *D. digitatus* *Dej. 427. 18.* Taken with last.

11. *D. arenosus* *Lea.* In the British Museum.

12. *D. rufipes*? *Dej. 428. 20.—tristis Ste.* Beginning of August, coast of Solway Firth, Mr. Heysham, and Wimbledon common, Mr. Ingpen.

13. *D. gibbus* *Fab. Dej. 428. 21.—remotus Mars.* Inhabits moss in winter; is common in moist places, Battersea fields in July; upon plants in ozier holts, Norfolk; under stones by the sea side, and about the sand hills, Swansea, L. W. Dillwyn, Esq.: edges of heaths near Carlisle, T. C. Heysham, Esq.; and near Belfast, A. H. Haliday, Esq.

14. *D. minimus* *Curt. Guide, Gen. 32. n. 12.*

Length one line. Dull bluish black: trophi and antennæ ferruginous, the latter dark towards the apex: legs castaneous: thorax with a transverse channel before, and an obscure one down the centre, deep at the base: elytra with eight punctured striæ on each, vanishing at the apex: anterior tibiæ terminated by two equal incurved spines. Smaller, narrower, and duller than *D. gibbus*, and the channel down the thorax and the punctures on the elytra are much fainter. Habitat with last.

The plant is *Bartsia viscosa* (Viscous Bartsia).



Reddy, 1904, Trans. Am. Ent. Soc.

LEIOCHITON READII.

ORDER Coleoptera. FAM. Carabidæ *Lat.* Scaritidæ? *MacL.*

Type of the Genus, Scarites arcticus Payk.

LEIOCHITON *Curtis.*—*Clivina Gyl., Dej.*—*Scarites Payk., Schö.*

Antennæ inserted before the eyes, close to the base of the mandibles, not longer than the thorax, slender and moniliform, pubescent, excepting the 4 basal joints; 11-jointed, 1st joint the most robust and rather the longest, 2nd the shortest and smallest, 3rd slender, but almost as long as the 1st, 4th slender not much longer than the 2nd, the remainder oval, terminal joint elongate-ovate (6).

Labrum transverse, anterior angles rounded, furnished with a few short spiny bristles, concave before and producing a few long bristles (1).

Mandibles curved and pointed, one having a strong tooth on the inside (2), the other with 2 very small tubercles.

Maxillæ terminating in a claw, the internal margin ciliated with curved spines, hairy towards the bottom. *Palpi*, internal biarticulate, basal joint longer than the terminal one which is slightly curved and rounded at the apex: *external* long and 4-jointed, basal joint small, 2nd large, 3rd rather shorter, clavate-truncate, 4th long, robust elliptical truncate (3).

Mentum transverse, bilobed, being deeply emarginate in front, and producing an obtuse lobe in the centre, the lateral ones rounded. *Palpi* large, attached to 2 long scapes, triarticulate, basal joint minute, 2nd long and robust, furnished on the inside with 2 bristles, 3rd considerably longer, subfusiform-truncate.

Labium oblong, anterior margin concave, with 2 bristles in the centre (4).

Head small subtrigonal. Eyes small and prominent. Thorax much broader than the head, subglobose, produced behind like a hoop, covering the peduncle of the abdomen upon which is placed a minute Scutellum. Elytra ovate, slightly emarginate towards the apex. Wings ample. Legs rather short: Thighs, anterior a little incrassated: tibiæ, anterior short, thickened towards the apex, notched on the inside, furnished with 2 acute spines and ciliated with bristles, the external side towards the apex being slightly denticulated, the others spurred at the apex: tarsi 5-jointed, 3 basal joints slightly dilated in the males (5), somewhat crescent-shaped, the 4th minute, 5th long and slender. Claws rather long and bent.

READII *Curtis.*

In the Cabinets of Mr. Reade and the Author.

HAVING already characterized *Clivina* (fol. 175.), I shall refer the student to a comparison of the dissections, which will convince him that it is impossible to retain these insects in the same genus: the minute 2nd joint of the antennæ, the cylindrical terminal joint of the maxillary palpi, the dilated anterior tarsi, and the tibiæ destitute of the obtuse terminal spines, are characters which show that our genus recedes very considerably from *Clivina*, and it will probably find a natural situation between *Dyschirius* and *Stomis*.

The Rev. J. B. Reade, of Halifax, having in the handsomest manner presented me with fine examples of the following insects, I am happy in the opportunity it affords me of dedicating to so zealous a naturalist the new species he has detected. They were all taken under small stones imbedded on mounds of sand and moss on Cold-edge, the moor due north of Halifax.

1. *L. arcticus* *Payk. Faun. Suec.* 1.85. 2.—*Gyll.* 2. 168. 1.—*Dej.* 1. 420. 8.

Blackish with a brassy tint, very smooth and highly polished: antennæ and mouth ferruginous, legs ochreous: head with 2 transverse channels before: thorax globose with a faint channel down the centre, terminated anteriorly by an imperfect transverse one, the hinder portion produced and hoop-shaped, forming a deep transverse line strongly impressed with a row of punctures, and a shallow impression across the centre: elytra with 3 or 4 lines of punctures on each, the sutural one the strongest, broken near the base and nearly reaching the apex, 2nd and 3rd very faint, the former vanishing beyond, the latter at the middle.

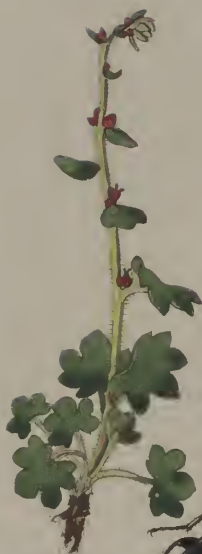
This species has been found in Lapland, and as far to the east as the environs of St. Petersburg; but never before so far to the south as England.

Var. β . with 5 striæ on each elytron, more strongly punctured and extending further.

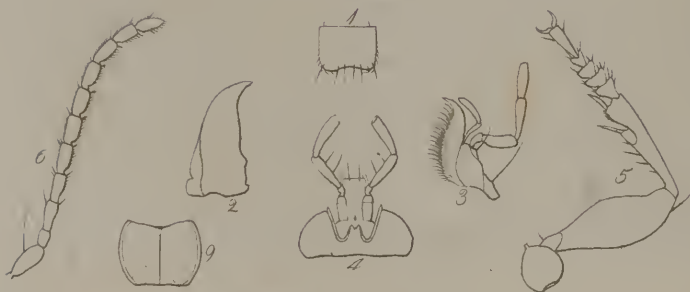
2. *L. Readii* *Curtis's Brit. Ent. pl.* 346.

Brilliant bluish black: antennæ, mouth, and legs ochreous, the former rather more ferruginous: thorax narrower, the channel down the centre deeper, and the anterior transverse impression stronger, the narrowed collar behind sparingly punctured, elytra with 3 punctured striæ on each, the 3rd scarcely visible, the posterior margin subferruginous.

The plant represented is *Hymenophyllum Tunbridgens* (Tunbridge goldilocks), for specimens of which, as well as one of the insects, I am indebted to Mr. S. Gibson: he informs me that the variety of the plant figured grows on the Rake-end Common near Todmerden, Lancashire.



Soxifraga caerulea



Soxifraga caerulea Curba London July 1897

STEROPUS CONCINNUS.

ORDER Coleoptera. FAM. Carabidæ Lat.

*Type of the Genus Carabus madidus Linn.*STEROPUS Meg.—Pterostichus Bon.—Molops Sturm.—Carabus Linn.,
Fab., Oliv., Marsh.*Antennæ* inserted near the anterior margin of the eyes, rather robust and pubescent excepting the 3 first joints; 11-jointed, basal joint thick obovate, 2nd small, 3rd as long as the 1st, clavate, the remainder shorter, compressed and nearly as broad as the 1st, being slightly produced on the inside, terminal joint subovate (fig. 6).*Labrum* quadrate, slightly rounded and emarginate anteriorly, sides ciliated, front producing a few bristles (1).*Mandibles* rather slender, bent, not very acute, slightly dentated on the internal side towards the base (2).*Maxillæ* rather small, bent, acute, ciliated with rigid hairs internally. *Palpi* 2, internal short, slender, 2-jointed, basal joint clavate, 2nd bent ovate at the apex; external 4-jointed, basal joint small, 2nd robust, 3rd a little longer than the 2nd clavate, 4th shorter, ovate truncate (3).*Mentum* transverse, bilobed, producing in the centre a notched process. *Lip* elongated, quadrate. *Palpi* long, arising from scapes on each side the lip, long 3-jointed, basal joint minute, 2nd and 3rd long of equal length, clavate truncate (4).*Eyes* small, globose. Head rather elongated, much narrower than the Thorax which is suborbicular concave before, truncated behind, sides margined (9). *Elytra* connate. Wings none in either sex. Legs strong. Thighs robust, posterior remote at their attachment, trochanters very long. Tibiæ spurred, anterior notched on the internal side, middle and posterior furnished with series of rigid bristles. Tarsi 5-jointed, 3 basal joints dilated in the males, terminal joint long. Claws bent strong (5, a fore leg).

CONCINNUS Sturm's Deut. Faun. V, 175. 7. tab. 104. f. c.

Black smooth shining: apex of mandibles castaneous, tips of palpi ochraceous: antennæ excepting the 3 first joints covered with piceous pubescence: 2 impressions upon the nasus: thorax with a channel down the centre furcate at the base, a curved, impressed line across the anterior portion and a fovea at each posterior angle. Coleoptra ovate. Elytra with 8 deep striæ on each, the 1st being furcate at the base, the 8th strongly punctured, a puncture next the 2nd stria near the middle and another upon the 3rd towards the base: bristles upon legs ferruginous.

*In the Author's Cabinet.*THE differences in the trophi, antennæ and legs of *Steropus* and *Omascus* (pl. 15.) are so trifling, that the former can only

be considered as a subgenus founded on secondary characters, viz. the absence of its wings, its more orbicular thorax and ovate elytra.

1. *S. madidus* Linn., *Fab.*, *Oliv.* 3. t. 5. f. 61. *Marsh.*

is one of the commonest of our beetles, abounding even in our houses at all seasons, and is remarkable only for a decided variation in the colour of the legs, some being entirely rufous, others as uniformly black; this, which is a good type of the genus, is the only one recorded as British.

2. *S. concinnus* Sturm., *Nob.*

We have little doubt that the example before us is a female of Sturm's insect; it is the only specimen existing in any cabinet that has come under our observation in this country, and was taken by the author in Scotland either in July or August 1825.

It may at first sight be distinguished from the type, being smaller, the limbs are much more slender, the head is not so large in proportion, the foveæ and channel upon the thorax are less distinct, whilst the striæ upon the elytra (which are broader towards their termination) are much deeper; but it may easily be confounded with *Carabus* (*Omasus*) *Nigrita* Fab.

The plant is *Saxifraga cernua* (Drooping bulbous Saxifrage), gathered by Mr. Dale at the summit of Ben Lawers in the middle of July.

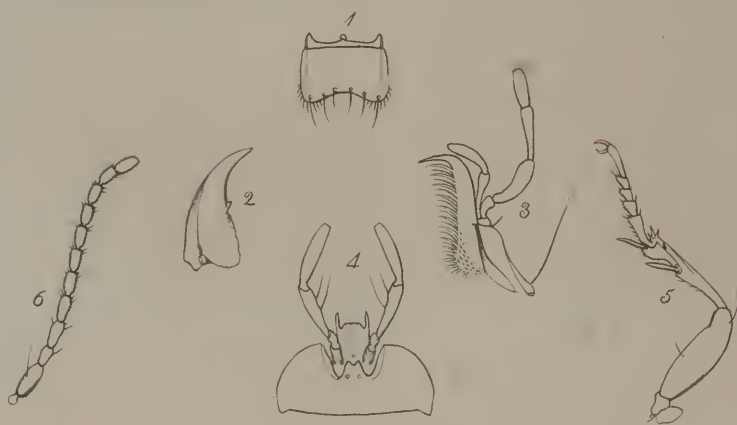


Plate by J. Guerin-London April 1. 1824

OMASEUS ATERRIMUS.

ORDER Coleoptera. FAM. Carabidæ Lat.

Type of the Genus Carabus aterrimus Fab.

OMASEUS Ziegler. Carabus Linn., Fab. Harpalus Lat. Poecillus Bon.

Antennæ filiform, first joint the largest, cylindric, oblong, second the smallest, third twice the length of the second, the following hairy, of nearly equal length. (6.)

Labrum nearly quadrate, straight at its base, rounded at its corners, emarginate and hairy in front. (1.)

Mandibles arcuated, acute, with a small tooth or elevation about the middle of the internal edge, and minute clefts near the base. (2.)

Maxillæ considerably bent at the apex, strongly ciliated on the internal edge, and externally towards the base, with 2 long hairs on the horny edge: *internal palpi* 2-jointed: *external* 4-jointed, first joint small and bent, second robust, twice the length of the first, and curved the contrary way, third same length as second, somewhat clavate, fourth shorter, oval, truncate. (3.)

Mentum large, broad and straight at its base, narrowed before, sides very convex, deeply emarginate in front, with a bifid process in the centre: *Palpi* 3-jointed, first joint very small, second long, rather uneven on its internal edge, third long, truncate: *labium* projecting beyond the first joint of palpi, produced into a spine on each side. (4.)

Thorax subquadrate, transverse, slightly rounded behind, with an impression on each side of its base. Abdomen elongate, ovate, robust. Wings 2. Feet formed for running. Anterior tarsi with 3 dilated joints. Anterior tibiæ notched on their internal edge. (5.)

ATERRIMUS Fab. Ent. Syst. 1. p. 156. n. 141.

Black, shining: 2 impressed lines on the forehead. Thorax broader than head, with a narrow slightly reflected margin, a semi-circular line in front, from which a channel extends down the centre. Elytra broader than thorax, striated, with 2 punctures in the second stria from the suture, and another in the third, nearer the base.

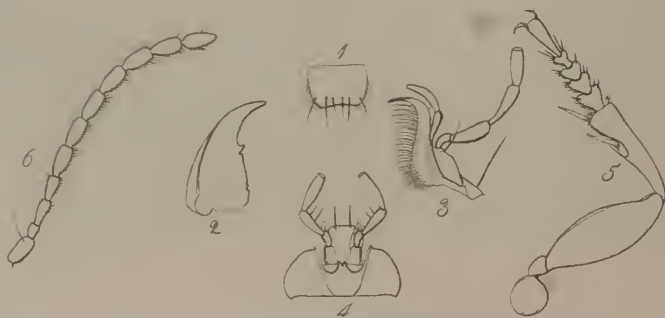
In the Cabinets of Mr. Sparshall and the Author.

THIS genus, proposed by Ziegler and adopted by Dejean, has not hitherto been published with any defined characters that I am aware of: but as the species composing it do not associate

well with any of the other Harpali of Latreille, I have little doubt, as I proceed with the other groups of that extensive family, I shall be able to show clearly that the trophi are sufficiently different to warrant forming them into a distinct genus.

The individuals which *Omasus* comprises found in this country are *O. aterrimus* figured in the plate (which is a male, and drawn rather larger than life); *H. orinomum* of Leach, taken in Scotland and Ireland; and *C. nigrita* Fab., which is the *C. aterrimus* of Entomologia Britannica: it is to be found under the bark and at the roots of trees, and is common every where; but our insect, the true *O. aterrimus* of Fab., was unknown as an inhabitant of this island until it was discovered in Norfolk by my lamented friend the late Joseph Hooker, Esq. of Norwich. Mr. Sparshall afterwards found a specimen at Horning in the same county, which had just settled upon a plant in the marshes, the wings being at the time unfolded; and in January 1822 he was so obliging as to take me to the same neighbourhood, where I had the pleasure of finding 2 specimens secreted in crevices in the bark of pollard willows by the side of the river: they did not appear to be much affected by the cold at the time, although the tranquil waters which covered the surrounding country were frozen over; for one of them made its escape, and falling into the river, which had overflowed its banks, it sunk, and must have attached itself to the grass at the bottom, for after the most diligent search we could not find it: at the end of November in the same year we went again, when we found a considerable number apparently in their natural habitation, the decayed stumps of trees that had been cut down by the sides of ditches which frequently overflowed them: we dug many out of the trees, so completely enveloped that it is difficult to imagine how they could have got there, unless they had resided in the wood in the larva state: it is evidently a very local species, attached to damp situations, and able in warm weather to fly with celerity. Mr. Stephens has also had several sent from Ireland, which came safe to him in a letter by the mail; they were said to have been taken in an ants nest, the inhabitants of which they probably devour, as the Carabidæ live upon other insects, and will even destroy their own species.

Peziza aurantia of Persoon (Orange Spread-cup) being found at the roots of decayed trees, it accompanies the insect in the plate.



Publ. by J. Curtis Jan 1 1828

196.

PTEROSTICHUS ELONGATUS.

ORDER Coleoptera. FAM. Carabidæ Lat.

Type of the Genus Carabus fasciato-punctatus Fab.

PTEROSTICHUS Bon., Lat., Sturm. Dej.—Harpalus Lat.—Carabus Fab., Marsh.

Antennæ inserted before the eyes at the base of the mandibles, 11-jointed, pubescent excepting the 3 first joints, basal joint rather robust oblong, 2nd small, 3rd and 4th clavate, shorter than the remainder which are compressed and carinated on both sides, the terminal one conical (fig. 6).

Labrum transverse quadrate, anterior angles rounded, fringed with short bristles, anterior margin slightly concave producing long bristles (1).

Mandibles porrected, bent, acute, crenated towards the base, one producing a tooth near the middle, the other, one below the middle (2).

Maxillæ rather long, slender, very much hooked and acute, ciliated with strong bristles internally. *Palpi*; *internal* rather long, biarticulate, 2nd joint rather bent: *external* 4-jointed, basal-joint short slender, 2nd and 3rd long of equal length, the former robust, the latter clavate, 4th considerably shorter, elongate ovate truncate (3).

Mentum transverse, deeply emarginate, producing a long and sharply notched lobe in the centre. *Labium* quadrate, 2 bristles arising from the centre and 2 narrow lobes from the sides. *Palpi* rather robust, arising from scapes, 3-jointed, basal joint small, 2nd and 3rd of nearly equal length, the former clavate, the latter subfusiform truncate (4).

Head oblong. Eyes small. Thorax subcordate, truncate before and behind. Body depressed. Scutellum small triangular. Elytra emarginate at the apex. Wings 2. Tibiæ spurred, anterior emarginate. Tarsi 5-jointed, anterior dilated in the males, especially the 3 first joints, which are cordiform, terminal one elongate-clavate. Claws simple (5, fore leg of a male).

Obs. The dissections and description were made from *Carabus macer* Marsh.

ELONGATUS Samouelle's MSS.

Black shining. Head ovate. Eyes small. Antennæ fuscous, except at the base. Thorax very much narrowed behind, a channel down the centre and a strong impression near the posterior angles. Elytra with 8 striæ on each, the sutural one furcate at the base, the 2nd stria with 4 strong impressions commencing near the middle, the 3rd with one nearer the base, and the 8th with strong punctures the whole length. Claws and apex of *Palpi* ferruginous.

In the Cabinet of the British Museum.

BONELLI having established the genus *Pterostichus*, which has been adopted by Latreille, Dejean, and Sturm, we have yielded to such high authority, although according to our notions it is only a division of *Omasseus*. It is the more remarkable that the trophi and antennæ should not afford important distinctive characters, because the true *Pterostichi* from being so greatly depressed, present a peculiarity of habit that enables us at once to distinguish them; their antennæ are rather short, their heads often elongated, the thorax narrowed and truncated behind with the angles acute.

The species dissected to illustrate our genus appears to be the only one hitherto recorded as an inhabitant of Britain: it is therefore with unusual satisfaction that we present our readers with the following table of those in the Cabinet of the British Museum, together with their localities, which we are enabled to give through the kind attention of Mr. Samouelle.

1. *P. macer* Marsh. 466. 92.—*picimanus* Duft.—March and April, under the bark of Willow trees, Hackney Marshes: roots of trees, Greenwich Park: middle of July under clods of earth on the banks of the Humber.
2. *brunnipes* Sam. MSS.—29th May in a marsh near Stonehouse, Devon; also under stones near a running stream between Crabtree and Ridgway, May 30th; and a third specimen, July 1st, under a stone near the river between Brickleigh and Shaw-bridge.—*Leach's MSS.*
3. *elongatus* Sam. MSS. Nob.—Devonshire. Dr. Leach.
4. *fasciato-punctatus* Fab. Panz. 67. 9.—Devonshire. Dr. Leach.
5. *Selmanni*? Duft.—*Sturm tab.* 106. b.—Under a stone near the river Plym, June 2nd. Dr. Leach.
6. *oblongo-punctatus* Fab.—*Oliv.*—*Panz.* 73. 2.—In a salt marsh near the Lary. Dr. Leach, May 26th. For a specimen of this insect we are indebted to the Rev. F. W. Hope.
7. *parum-punctatus* Dej.—*8-punctatus*? Fab. Marsh.—In our table of the genus *Agonum* we followed Schönherr and Gyllenhal in giving Marsham's *Carabus 8-punctatus* as a synonym to Fabricius's *C. parum-punctatus*; but Marsham's reference being to Fabricius's Supplement, of which those two authors take no notice, it is possible that they may be mistaken; neither are we certain that it is the same as Dejean's insect.

The plant, *Ranunculus parvulus* Linn., was communicated by John Lindley, Esq.



Platylabus fuscus Linn. 1757

PATROBUS ALPINUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus rufipes Fab.

PATROBUS *Meg., Lat., Dej.*—Platysma *Sturm.*—Carabus *Fab., Payk., Panz.*

Antennæ inserted before the eyes at the base of the mandibles, filiform, pubescent excepting the 1st and 2nd joints, 11-jointed, basal joint the most robust, ovate, 2nd small, 3rd long, the remainder not longer than the 1st, excepting the terminal joint which is as long as the 3rd and conical (fig. 6).

Labrum transverse, sides rounded, narrowed anteriorly, the front straight and ciliated with a few bristles (1).

Mandibles subtrigonal, slightly bent, not very acute, having 3 irregular teeth on the internal side towards the base (2).

Maxillæ rather long and slender, slightly bent and acute at the apex, ciliated internally. *Palpi*; *internal* rather longer than the maxillary lobe, biarticulate, the 2nd joint curved: *external* not much longer than the labial, but more robust, 4-jointed, basal joint small, 2nd the longest and most robust, 3rd subclavate and short, 4th nearly as long as the 2nd fusiform (3).

Mentum transverse, not deeply emarginate, the centre producing a notched lobe. *Lip* oblong, the sides producing small *paraglossæ*, and the centre a bristle. *Palpi* attached to long distinct scapes, 3-jointed, basal joint minute, 2nd not very long, 3rd the longest and most robust, fusiform (4).

Head *subtrigonal*, narrowed suddenly at the base. Eyes *prominent*. Thorax *subquadrate*, sides *convex*, narrowed behind, the posterior angles *acute*. Scutellum *triangular*, not enveloped by the Elytra which are notched near the apex. Wings *sometimes rudiments only*. Tibiæ *spurred*, anterior *emarginate*. Tarsi *5-jointed*, anterior, with the 2 first joints *dilated in the males*, especially the basal one (5, a fore leg).

ALPINUS *Nob.*

Male smooth, shining, castaneous. Head and thorax black with a chestnut tinge, the latter with the anterior margin punctured; a channel down the middle, deepest at the base, and a large, deep, punctured fovea on each side at the base, extending to the posterior angles. Elytra with 9 rather faint and imperfectly punctured striæ on each, the sutural one abbreviated; between the 3rd and 4th, are 3 equidistant impressed dots.

Female larger, paler; the elytra ochraceous, inclining to ferruginous.

Wings ample in both sexes.

In the Author's Cabinet.

THE Baron Dejean has placed *Patrobis* near to *Pogonus* in his Catalogue, an arrangement which I am disposed to adopt, since it appears to be natural; I am therefore totally at a loss to account for the system proposed in the "*Histoire Naturelle et Iconographie*," and the "*Familles Naturelles*," where *Patrobis* is included in a section with *Panagæus*.

The anterior tarsi of the males in *Patrobis* having only two dilated joints, it is separated by that character from many of the *Harpalidæ*; and the straight anterior margin of the labrum, the slightly emarginate mentum, the more robust second joint of the internal, and the more slender terminal joints of the external maxillary palpi, are essentially different to *Pogonus* *.

1. *Patrobis rufipes* Fab.—*excavatus* Payk.—var. b. Panz. 34. 2.

This insect has only the rudiments of wings, and the thorax is longer than it is broad, as shown at fig. 9. It is common in Norfolk, and Battersea Fields near London, where it is found under stones in moist situations from June to September.

2. *P. alpinus* Nob.

I have little doubt that this is the Var. *c. alatus* of Gyllenhal (v. 1. *pars* 2, p. 98), and although that learned author has recorded it as a variety only, I have considered it as distinct, for the same reasons that were given for separating *Clivina*, where the two species are characterized precisely in the same manner. Both sexes have ample wings, the thorax is broader than long, the elytra are less deeply striated and of a castaneous colour, having the appearance of immature specimens; but such was not the case, the elytra being perfectly hard when they were captured. The sexes of this rare insect, the female of which is figured, I found under a fragment of rock near the summit of Craig-calloch, one of the Dochart Hills, together with specimens of *Helobia Gyllenhalii* (Plate 103), the 21st of July 1825.

The plant, *Saxifraga hypnoides* (Moss Saxifrage), was gathered on the same mountain.

* In the characters of *Pogonus* the internal maxillary palpi are represented as 3-jointed, from the scape, to which they are attached, being more developed than usual; but as that part is generally obsolete, it will be better to describe them as biarticulate.



Des. by J. Curtis London Dec. 1824

POGONUS BURRELLII.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus chalceus Marsh.

POGONUS Ziegler. Raptor Megerle. Carabus Marsham.

Antennæ nearly cylindric, pilose, 11-jointed, the joints gradually increasing in circumference, and decreasing in length from the third to the terminal joint, which is longer than the penultimate and oblong-conic; first joint large, second small, third as long as the first. (f. 6.)

Labrum transverse, sides convex, basal and anterior margins slightly emarginate. (1.)

Mandibles somewhat curved, slender, acute, with a small tooth near the base on the internal edge, sometimes with a larger tooth in the centre. (2.)

Maxillæ curved, slender, acute, with strong bristles on the internal edge: *Palpi* internal very slender, 3-jointed, first joint minute, second clavate, third attenuated external: 4-jointed, first joint short, the remainder longer, of nearly equal length, second cylindric, third clavate, fourth ovate, truncate. (3.)

Mentum transverse, nearly straight at its base, sides very convex being narrowed behind, deeply emarginate in front with a small bifid tooth in the centre: *Labium* exserted, coriaceous in the centre, lateral processes membranaceous: *Palpi* 3-jointed, first joint small, trigonate, second long, clavate, third somewhat ventricose, terminated (apparently) by a gland. (4.)

Head narrower than the thorax, trigonate. Thorax narrower than the abdomen, nearly quadrate, with an impression near the posterior angle. Elytra nearly thrice the length of the thorax. Scutellum minute. Wings 2. Legs formed for running, slender. Anterior tibiæ notched internally, spined at their extremities. Anterior tarsi in the male dilated, especially the basal joint (5 a fore leg).

The dissections are all made from P. Burrellii.

BURRELLII Haworth's MSS.

Head and thorax smooth, cupreous, reflecting deep green, especially round the margins, the head with a longitudinal groove on each side between the eyes, the thorax margined on the sides, narrowed behind, with the anterior angles rounded, the posterior more acute, a channel down the centre, with an impressed line forming a triangle with the anterior margin, punctured posteriorly, with an impressed line parallel to the base, and a large foveola near the posterior angles. Elytra with a narrow margin, smooth, pale ochraceous, somewhat variegated with fuscous, sometimes having a rosy tinge, an abbreviated stria next the scutellum, and eight punctured longitudinal striæ, some of which are united near the apex. Wings white, semi-transparent. Scutellum, legs, antennæ and palpi more or less dull ferruginous. Beneath black tinged with green and purple.

In the Cabinets of Mr. Burrell and the Author.

THE Genus now under consideration has been named *Pogonus* by one author, and *Raptor* by another; and not knowing which is entitled to priority, I have followed the Baron Dejean in adopting the former, not doubting but he had just reasons for so doing. I am also inclined to believe, that either no characters have hitherto been published of this genus, or that they have not yet reached this country; I have therefore been under the necessity of drawing the best I could from our three species, as well as a specific description of the beautiful individual selected for illustration, it never having been before described, although it was named many years since, by A. H. Haworth, Esq., after our old and esteemed friend the Rev. J. Burrell, F.L.S., by whom it was first detected in 1806, and to whom I am indebted for specimens, and the following particulars: "The Genus *Raptor*, confined as it is to three British species (*Burrellii* Haw.; *chalcus* Marsh.; and *æruginosus* Steph. MSS.), is perfectly maritime; the species being all found in the same situation, and may be deemed subaquatic; for in the winter, and a considerable part of the summer, the habitat of these pretty animals is entirely covered with water, which stagnates many inches deep in the low places of the marshes after the tide has flowed and ebbed. When these spots, which are first formed by a casual removal of the oozy soil for agricultural purposes, are dried, through evaporation caused by the summer sun, the soil cracks in various directions, and out of these cracks, when any one walks across the place, the *Raptors* dart up with swiftness and in great numbers. They are principally found in the months of June, July, August, and September; and if the weather be warm and dry, they may be captured, though in less quantity, in May and October. They associate with many species of *Bembidium*, and not unfrequently the *Cilennum laterale* is seen in their company. The most manifest habitat of our species is at Salthouse in Norfolk, upon the salt marshes separated from the German Ocean by a high mound of pebbles and other small stones rounded by attrition, and through which mound the tide penetrates at its highest flow."

The male is somewhat smaller than the female, but both sexes vary in magnitude. Its food is undoubtedly similar to that of other *Carabidæ*, and the soil is productive of very few plants: among these, however, the *Statice Limonium* (Lavender Thrift) is handsome and common; it is therefore made the accompaniment of the plate.



Drawn by J. Curtis London Dec. 11 1827

OPHONUS GERMANUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.**Type of the Genus Carabus germanus Linn.*OPHONUS *Ziegl., Dej., Sturm, Lat.—Harpalus Lat., Bon., Leach, Sturm.—Carabus Linn., Fab., Marsh.**Antennæ* inserted before the eyes at the base of the mandibles, subclavate, pubescent excepting the 2 first joints; 11-jointed, basal joint elongate-ovate, a little the stoutest; 2nd about half the length of the 1st; 3rd and following shorter than the 1st joint, excepting the terminal one which is the same length and subovate (fig. 6).*Labrum* semiorbicular, emarginate and producing a few bristles in front (1).*Mandibles* short, subtrigonal, not very acute, rather dilated towards the base on the internal side (2).*Maxillæ* slender, bent, very acute, pubescent and ciliated. *Palpi* compressed; *internal* rather long biarticulate, basal joint slender, 2nd rather longer, bent ovate, acuminate; *external* scarcely longer than the labial, 4-jointed, basal joint minute, 2nd linear the longest, 3rd rather short clavate, 4th the most robust, short ovate (3).*Mentum* broad and very short, deeply emarginate, the centre slightly produced. *Lip* long, producing a broad lobe on each side. *Palpi* attached to long moveable scapes, pilose, rather long, 3-jointed, basal joint minute, 2nd and 3rd long of equal length, the latter the most robust, fusiform truncate (4).Superior surface *punctured and pubescent*. Head *subtrigonal rather broad*. Eyes *small*. Thorax *suborbicular or subquadrate, with the posterior angles sometimes rounded*. Scutellum *minute*. Elytra *slightly emarginated at the apex*. Wings *not very ample*. Legs *rather large*. Tibiæ, *anterior not deeply emarginate*. Tarsi *5-jointed, anterior and intermediate with the 4 first joints cordiform and dilated in the males*. Claws *simple* (5, *fore leg of male*).Obs. *The dissections were made from C. nitidulus Schr.*GERMANUS *Linn. Syst. Nat. 2. p. 672. n. 26.—Fab. Ent. Syst. 1. pars 1. p. 162. n. 167.*Dull rufous, pubescent, thickly punctured. *Antennæ* reddish brown, excepting the 3 first joints. Head entirely rufous inclining to castaneous. Thorax deep blue with a violaceous tinge, the margins ferruginous; more strongly punctured than the head, a channel down the centre and a fovea on each side at the base. Scutellum blue. Elytra finely punctured with a large blue spot towards the apex; 8 punctured striæ on each, the 2nd incurvated at the base and forming a 9th abbreviated stria. Beneath black.*In the Cabinets of the British Museum and the Author.*

OPHONUS is so nearly allied to the type of the genus *Harpalus* (*C. ruficornis*, Linn.), in texture and sculpture, as well as in the structure of the mouth, that it is difficult to determine whether these two groups ought to be separated, or whether by withdrawing *H. ruficornis*, and adding it to the *Ophoni*, that *Harpalus* would form a more distinct genus: we hope, however, when we arrive at the illustration of the *Harpali*, to be able to speak with more confidence upon the subject. The above two genera, with three or four others, are distinguished by the dilated tarsi of the intermediate, as well as the anterior pair of feet in the males; but the only differences in the trophi in *Ophonus* and *Harpalus* appear to be in the robust and attenuated terminal joint of the internal, and the more ovate terminal joint of the external maxillary palpi, and the slighter emargination of the mentum in the former genus.

The following is a table of our British species, and we have two or three others that may be esteemed distinct by some of the writers of the present day.

1. *O. obscurus* F.—*Sturm* 92 a.—*purpureo cæruleus* Marsh.
Under stones in March and April, and on Hackney
Marshes during floods.
2. *sabulicola* F.—*Sturm* 92. b.—*Panz.* 30. 4.—*azureus*
Oliv. 3. t. 12. f. 135. June; near Halesworth, Suffolk, upon a bank.
3. *Germanus* L.—*Panz.* 16. 4.—*Nob.* June; Kings-
bridge, Devon, and near Bristol. Dr. Leach.
4. *azureus* Ill.—*chlorophanus* *Panz.* 73. 3. August and
September; Newmarket Heath: under stones near
St. Lawrence, Isle of Wight; and Leith Hill near
Dorking. Mr. Chant.
5. *nitidulus* *Schr. Ins. Aust.* 213. 401. From Norfolk.
6. *rupicola* *Reich.*—*Sturm.* pl. 94.—*subcordatus* Dej.
From Norfolk.
7. *puncticollis* *Payk. Gyll.*—*Sturm?* 94. a.—*foraminu-*
losus Marsh. Common in Norfolk.
8. *cribellum* *Leach MSS.* August; Dover. September;
Isle of Wight.
9. *angustatus* *Nob.* A much narrower and blacker
insect than the last, and is at once distinguished by
its having a very obscure channel only in the centre
of the thorax.

For specimens of the plant, *Rumex pratensis* of Mertens and Koch, we are indebted to John Lindley, Esq., who gathered them near Chiswick.



HARPALUS RUFICEPS.

ORDER Coleoptera. FAM. Carabidæ.

Type of the Genus, Carabus ruficornis Linn.

HARPALUS *Lat., Sturm, Dej., Curt.*—Carabus *Linn., &c.*

Antennæ inserted before the eyes at the base of the mandibles, remote, as long as the head and thorax, filiform, pubescent, pilose and 11-jointed, 1st and 2nd joints naked, the former the stoutest, the latter the shortest, 3rd nearly as long as the 1st and a little longer than the following, which are oblong-ovate, the terminal joint subelliptic (6).

Labrum subquadrate, the angles rounded, the anterior margin ciliated, furnished with 6 bristles and slightly concave at the centre (1).

Mandibles subtrigonal, curved externally and acute at the apex, one having a small tooth above, the other below the centre of the internal margin, and near the base is a small ciliated membrane (2).

Maxillæ slender, terminated by a bent acute hook, the internal margin ciliated with strong bristles. *Palpi*, *internal* as long as the lobe, slender and biarticulate, the joints of equal length, the 2nd a little curved: *external* long and 4-jointed, basal joint minute, 2nd and 3rd nearly of equal length, the former curved and stout, the latter clavate, 4th a little shorter, subfusiform-truncate, with a vesicle at the apex (3).

Mentum transverse, short, deeply notched before with an obtuse tooth in the centre, the lateral lobes subtrigonal and pubescent.

Labium long and narrow, the apex trifid, the central lobe horny quadrate and producing two bristles, the lateral ones rounded and membranous. *Palpi* rather slender, attached to 2 long and stout scapes, pilose and triarticulate, basal joint minute, 2nd and 3rd long, the latter rather the shortest and subfusiform (4).

Head *suborbicular-quadrate*: eyes *small, lateral and prominent*. Thorax *broadest at the middle or base, the posterior angles not rounded: scutellum minute*. Elytra *elliptical or ovate, more or less emarginate at the apex*. Wings *ample*. Thighs *short and stout*. Tibiæ *spurred at the apex, 4 posterior often spiny, the 1st pair emarginate on the inside*. Tarsi *5-jointed, dilated in the 1st and 2nd pair in the males, basal joint as large as the 2nd, 4th bilobed, 5th long and clavate*. Claws *simple and acute* (5, a fore leg of male).

RUFICEPS *Oeskey.*—*Curt. Guide, Gen. 44.*—Hottentotta *var. Dej.*

Smooth, shining, ochreous, with a castaneous tinge: head castaneous with 2 remote impressions between the eyes; labrum and tips of mandibles blackish; antennæ and palpi ochreous: thorax transverse-quadrate and piceous, the sides and angles pale castaneous; anterior margin concave, the angles rounded, posterior angles rectangular but rather obtuse, a channel down the back, the base thickly punctured, with a shallow fovea on each side: elytra piceous, the margin castaneous; with 8 striæ on each, the 1st furcate at the base, the 8th bearing some impressions largest towards the apex, which is scarcely emarginate: abdomen piceous above at the tip: legs ochreous, the tarsi slightly ferruginous.

In the Cabinet of Mr. D. Serrell.

THE Harpali are generally found under stones, and in gravel and sand pits, where they live upon other insects, and not unfrequently on each other.

Harpalus approaches very near to Ophonus; and the latter group is considered only as a division of the former by Dejean: the typical trophi, however, are different, as will be seen by referring to our plate 191. Restricted as Harpalus is at present, there is considerable variety in their figure: they are convex or depressed; the antennæ are much shorter in some than in others; the head is smaller; the thorax sometimes narrowed before, at others behind, the elytra are either comparatively short or long; and they have ample or imperfect wings. The genus is thus divided, and I must refer to the Guide for a list of the species.

A. ANYSODACTYLUS Dej.

First joint of the tarsus in the 4 anterior feet of the males smaller than the second joint.

10. *H. pœciloides* Ste.—*virens* Dej.

2. *H. binotatus* Fab.—Sometimes seen flying in the sunshine.

B. HARPALUS Lat.

First joint of 4 anterior feet in the males as large as the 2nd.

1. *H. ruficornis* Fab.—The *C. griseus* of Panzer is a very distinct insect, of which I have never seen a British specimen. We took several at Fontainebleau, which flew into our chambers at night, attracted by the light of candles.

3^a. *H. tenebrosus* Dej.—I took a specimen in the Isle of Wight the beginning of September 1826.

27^a. *H. ruficeps* Oeskey.—*Curt. Brit. Ent. pl.* 458. ♂.—Dejean supposes this to be an immature variety of *C. hottentotta* Duft. The only specimen I have seen was taken last August by my friend Dalton Serrell, Esq. at Barule in the Isle of Man; and as it has no appearance of immaturity, I have given it as a distinct species.

35^a. *H. Melampus* Duft.—*Sturm, pl.* 80. D.—I first discovered this fine insect under stones at the back of the Isle of Portland, the 14th of May. Dejean considers it to be the same as *H. depressus* of Sturm; but I have never seen any Harpalus so broad as my specimens.

44. *H. rufimanus* Mars. is only a variety, I believe, of *H. tardus*.

45. *H. stygius* Wilk. is the female probably of *H. serripes*.

C. PANGUS Zieg.

Terminal joint of palpi cylindrical or slightly oval. Dej.

9. *H. scaritides* Zieg.—*Sturm, tab.* 91. C.

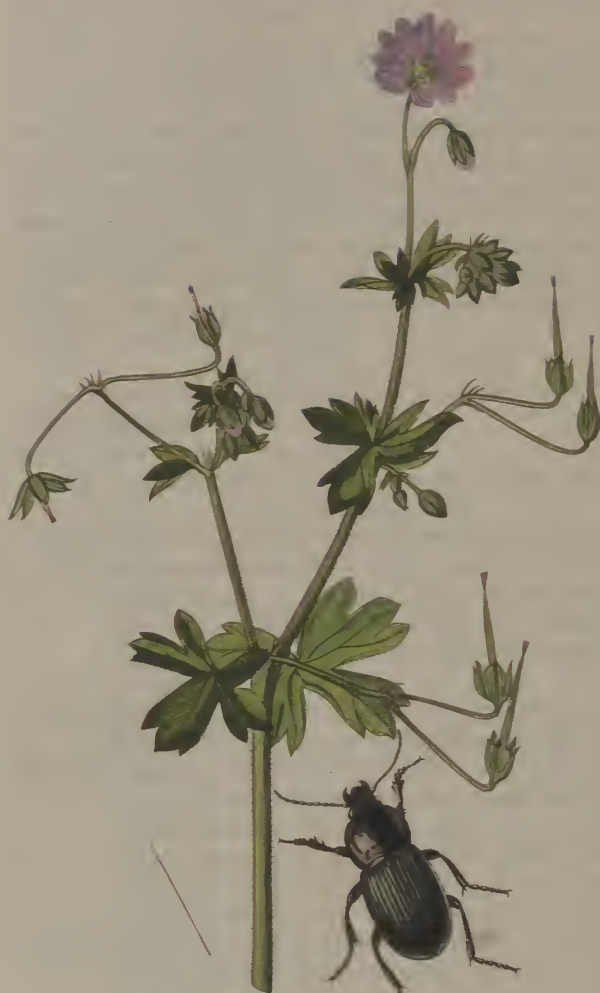
D. ACTEPHILUS Ste. MSS.

Thorax transverse, posterior angles rounded; anterior legs stout; antennæ rather short.

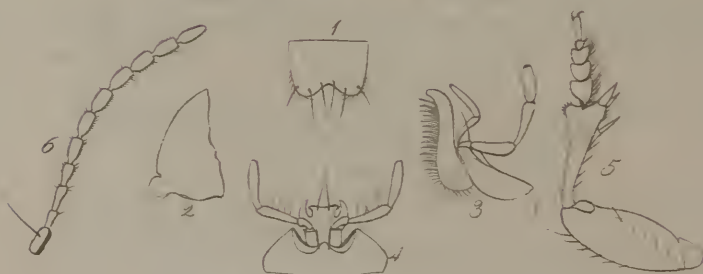
8. *H. picipennis* Sturm, tab. 90. A.—May and June, under stones, sandy places Chesil-bank, Isle of Portland.

7. *H. pumilus* Sturm, tab. 90. B.—Found with the last.

The Plant is *Papaver Argemone* (Long rough-headed Poppy).



Geranium pyrenaicum



Geranium pyrenaicum

ZABRUS OBESUS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus gibbus Fab.

ZABRUS Clairv., Bon., Leach, Sturm.—Harpalus Lat., Gyll.—Carabus Fab., Marsh., Panz.

Antennæ inserted close to the base of the mandibles, rather short, filiform and pubescent, excepting the 3 first joints; 11-jointed, basal joint robust oblong, 2nd the shortest, 3rd clavate, 4th scarcely so long as the preceding one, the remainder of equal length, excepting the last, which is rather longer and ovate (fig. 6).

Labrum subquadrate, rather narrowed before, the anterior angles very round and the margin deeply notched, producing short bristles on the sides, and a few long ones in front (1).

Mandibles subtrigonal, but little bent, one being sinuated on the internal margin (2).

Maxillæ long, the lobe narrow obtuse and ciliated with strong bristles. *Palpi*; *internal* long, very slender, composed of 2 joints of equal length, the former clavate, the latter slightly curved, attenuated and truncated; *external* rather robust, 4-jointed, basal joint short, 2nd and 3rd long of equal length, the latter subclavate, the 4th short, subovate truncate (3).

Mentum transverse, emarginate, with an obtuse simple tooth in the centre. *Labium* broad, horny dilated at the apex, producing a membranous incurved lobe on each side. *Palpi* 3-jointed arising from scapes, basal joint short slender, 2nd and 3rd of nearly equal length, the former subclavate pilose, the latter subfusiform and truncate (4).

Head rather short and broad. Eyes small. Thorax very broad and gibbous, the sides convex, angles sometimes rounded. Coleoptera very convex and notched externally near the apex. Scutellum triangular. Wings ample. Thighs robust. Tibiæ suddenly dilated at the apex, armed with short spines and spurs; the anterior very much dilated towards their extremities, slightly notched and spined on the internal side near the apex. Tarsi slender, the anterior with the 3 basal joints dilated in the males. Claws simple (5, a fore leg).

OBESUS Lat., Dej., Sturm.

Male black, smooth, shining. Mouth ferruginous; mandibles and labrum castaneous inclining to black. Head broad. Thorax transverse, with an æneous tinge on the margins; a transverse impression before, a faint channel down the centre, a fovea on each side near the base where it is punctured, the posterior angles rounded and slightly produced. Scutellum obsolete. Elytra slightly æneous, with 9 obscurely punctured striæ on each, the 1st very short; a row of deep punctures at the external margin. Antennæ, legs, and underside piceous inclining to castaneous; anterior tarsi of the latter colour.

Female duller. Elytra inclining more to dull cupreous.

In the Cabinet of the British Museum.

ZABRUS approaches very near to Harpalus in structure, but its convex form and the simple intermediate tarsi of the males, readily distinguish it from that genus: the obtuse maxillæ, the shortness of the terminal joint of the external maxillary palpi, the simple tooth of the mentum, and the powerful anterior tibiae are also essential characters. In Britain there are but two species.

1. *Z. gibbus* Fab.—*Clairv. Ent. Helv.* 2. tab. 11. f. a, b.—*Sturm's Deut. Faun. tab.* 98.—*Tenebroides* Panz. 73. 8.—*spinipes* Scop.—*gibbosus* Marsh.

Found in August and September, in corn-fields, sandy situations, and at the roots of grass, in Norfolk, the Isle of Wight, Battersea Fields, &c.; and a gentleman informs me that he took four specimens last August upon an umbellate plant at Heron Court, Hants. Its economy is very interesting; and the following remarks upon the subject have been collected from *Germer's Magazin*, and *Sturm's Deutschlands Fauna*,—in both of which are figures of the larvæ, pupæ, &c.

In May, 1812 the larvæ did great mischief to the sprouts and roots of the wheat in the canton of Seeburg in Halberstadt. The female beetles deposited numerous clusters of eggs in the earth, which in a short time produced larvæ or grubs, that made their appearance upon the surface in the evening and night to feed upon the young stalks of the wheat, hiding themselves in the day six inches deep; when full-grown they were more than an inch long, at which period (the beginning of June) they descended by a curved cylindric passage sometimes to the depth of two feet, forming at the termination a smooth oval cavity to contain the pupa; after three or four weeks the beetles made their appearance, when they became very destructive by climbing up the stalks and feeding upon the grain. The larvæ are supposed to be long-lived; and with them were found a considerable number of the grubs of *Melolontha ruficornis* Fab.: hence arises a question whether both sorts of the larvæ were graminivorous: that the grubs of the latter insect feed upon vegetable substances there can be no doubt; but should those of *Zabrus* do so, it will be a remarkable exception amongst the Carabidæ, all of which are considered carnivorous; it is a very strong and curious fact, however, that when the *Zabri* in their perfect state were confined in a box with some ears of corn, they fed upon the grain as long as the supply lasted, after which they attacked one another.

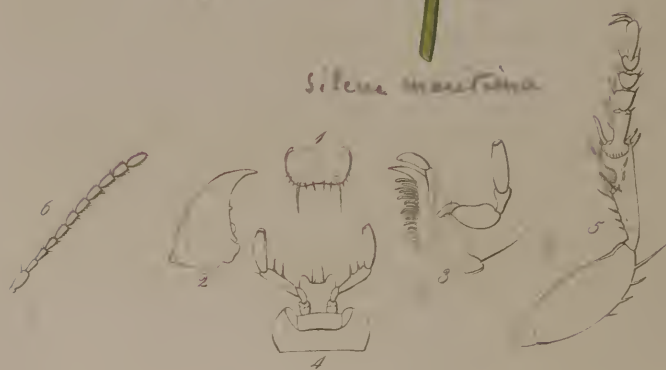
2. *Z. obesus* Lat., Nob.

A pair of this rare insect, which has I believe never been either described or figured before, was taken near Plymouth by Dr. Leach the end of April, and presented by him to the British Museum.

The plant is *Geranium Pyrenaicum* (Mountain Crane's Bill).



Silene maritima



Drawn by J. Smith, del. 1850.

MASOREUS LUXATUS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus, Trechus laticollis Sturm.

MASOREUS Zieg., Dej.—Badister Creut.—Trechus Sturm.

Antennæ inserted before the eyes at the base of the mandibles, pubescent, thickened towards the extremity, composed of 11 joints, nearly of equal length, basal joint scarcely more robust than the penultimate one, 2nd 3rd and 4th scarcely so long and rather slender, the remainder slightly increasing in diameter to the apical one, which is rather the longest, and elongate-ovate (6). *Labrum* transverse, narrowed anteriorly, all the angles rounded, slightly emarginated and ciliated with bristles (1).

Mandibles exerted, considerably bent and acute, with a small blunt tooth at the middle and a larger protuberance below (2).

Maxillæ bent and very acute at the apex, the internal margin ciliated with bent bristles. *Palpi* naked; *internal* as long as the maxillæ, biarticulate, basal joint the longest, clavate, 2nd semi-ovate; *external* robust, 4-jointed, basal joint curved, truncated, 2nd dilated, compressed, obovate, 3rd short cup-shaped, 4th as long as the 2nd, cylindric, terminated by a vesicle (3).

Mentum transverse, the sides only produced into lobes, without a central one. *Labium* subquadrate, the anterior angles forming 2 obtuse lobes, with a few bristles between. *Palpi* long, attached to distinct scapes, triarticulate, basal joint small curved, 2nd and 3rd equally long, the former producing 2 bristles on the inside, the latter slightly attenuated at the ends and truncate (4).

Head somewhat triangular, narrowed behind. Eyes small but prominent. Thorax transverse, considerably broader than the head, sides rounded, posterior margin slightly lobed. Scutellum placed upon a peduncle which separates the thorax from the Elytra, the latter are oblong, depressed, slightly truncated at the extremity and scarcely covering the body. Legs, anterior the strongest. Tibiæ, anterior notched and spined. Tarsi, anterior only dilated a little, furnished with strong spines, basal joint the largest, 2nd and 3rd obtrigonal, 4th cordate, 5th long, clavate. Claws long and simple (5, a fore leg.)

LUXATUS Creut., Dej. 3. 537. 1.—laticollis Sturm 6. t. 150, D.

Very glossy, pale castaneous. Head black excepting the clypeus. Thorax with a fine channel down the middle, and 2 shallow foveæ behind not at the angles. Elytra with a large black patch leaving the base and margins castaneous; each having an abbreviated and 8 long faintly punctured striæ with a few large marginal punctures towards the apex. Antennæ trophi and legs inclining to ochreous. Underside somewhat piceous.

In the Cabinets of Mr. Dale and the Author.

WHEN the first sheet of the "Guide" was published I had not seen *Masoreus*, and suspected that *Harpalus Orfordensis* of Spence (*H. vernalis* Duft) might be allied to it; but I am now satisfied that this insect ought to terminate the genus, *Harpalus* being nearly related to *Zabrus*.

Mr. W. S. MacLeay has described and figured in the "*Anulosa Javanica*" the genus *Æphnidius*, one of the *Harpalidæ*, a good deal resembling *Masoreus* in contour; but the shortness of the penultimate joint in the external maxillary palpi proves that our insect cannot belong to that family: this figure also establishes a valuable fact, that the produced thorax is not confined to one family. I shall not at present attempt to prove whether *Masoreus* ought to be associated with the *Trechis* or the *Troncatipennes* of Latreille; at the same time it will not be irrelevant to observe, that the uniform length of the joints in the antennæ, as well as the form of the maxillary palpi, make so near an approach to *Dromius*, that it is not improbable but *Masoreus* may unite that group with the *Scaritidæ*: whether the genus *Apotomus* will assist in such an arrangement I am unable to say from the want of specimens.

Masoreus luxatus is a rare and interesting insect, and has never been either described or figured in any English work. For specimens I am indebted to my friend Mr. Dale, who found them under stones by the Isthmus of Portland or Chesil Bank, June 17th, 1829.

The specimen of *Silene maritima* (Sea Catchfly) was from the same locality.



del. by J. Charles London Nov 1. 1827

PÆCILUS LEPIDUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.**Type of the Genus Carabus cupreus Linn.*PÆCILUS *Bon., Panz., Leach, Lat.*—*Platysma Sturm.*—*Harpalus Gyll.*—*Carabus Linn., Fab., Marsh.*

Antennæ inserted before the eyes at the base of the mandibles, as long as the thorax, compressed, pubescent excepting the 3 basal joints which produce only a few bristles; 11-jointed, basal joint the most robust, 2nd the smallest, 3rd the longest, the remainder of nearly equal length, the terminal joint rather longer, oblong, compressed at the apex (fig. 6).

Labrum subquadrate, angles rounded, anterior margin producing bristles, and slightly emarginate (1).

Mandibles rather slender, bent, acute, denticulated towards the base, one having a tooth near the middle on the internal side (2).

Maxillæ short, bent, acute, ciliated with strong bristles internally.

Palpi; *internal* not longer than the *maxillæ*, biarticulate, basal joint clavate, 2nd bent; *external* long, 4-jointed, basal joint minute, 2nd and 3rd of nearly equal length, the former the most robust, the latter clavate, 4th rather shorter, subcylindric truncate (3).

Mentum transverse, deeply emarginate, the centre producing an obtuse lobe. *Lip* long, subquadrate, the centre furnished with 2 bristles, the sides forming 2 membranous acuminate lobes.

Palpi 3-jointed, arising from long scapes, not remote, basal joint small, 2nd and 3rd long of equal length, the latter truncated (4).

Head rather large. Eyes small. Thorax subquadrate, base truncated, 2 channels or foveæ on each side near the posterior angles, which are acute. Scutellum minute. Elytra abruptly emarginate near the apex, the abbreviated stria very much longer than the scutellum. Wings, sometimes rudiments only. Tibiæ, anterior deeply emarginate. Tarsi 5-jointed, anterior with the 3 first joints cordiform and dilated in the males. Claws simple, bent, acute (5, a fore leg).

LEPIDUS *Payk.; Fab. Ent. Syst. v. 1. pars 1. p. 153. n. 124.*—*vulgaris DeGeer*—*var. f. cærulescens Herbst.*

Var. f.: deep blue with a violet tinge, long, narrow, smooth and shining. Head with a channel on each side the nasus. Thorax inclining to green, quadrate, sides rounded, rather narrowed behind, a channel down the centre and 2 very deep and short impressions at the posterior angles which are punctured. Elytra long and narrow with 8 punctured striæ on each, the 1st furcate at the base; on the sutural side of the 3rd are 3 impressed points, and the 8th is punctured with larger marks especially towards the apex. Wings none. Mandibles, antennæ, legs and under-side black: trochanters very long, extending beyond the margins of the elytra.

In the Author's and other Cabinets.

THE obtuse somewhat truncated tooth or lobe in the centre of the mentum of *Pœcilus* is the only character that is essentially different from many other genera that are closely allied to it: there are however minuter differences in the trophi, which may be of importance as they bear upon neighbouring genera, and will be pointed out as opportunities offer; and in our British species at least, the great length of the abbreviated stria next the scutellum, which is frequently united to the 2nd, thereby making that furcate at the base, appears to be a constant character.

About 20 species of this genus have been enumerated or described, most of which are inhabitants of Europe, but this country has hitherto only presented four.

1. *P. lepidus* Payk. &c.
2. *dimidiatus* Fab. — *Don.* 16. 565. — *Kugellani Ill.* — *Panz.* 39. 8. — *tricolor* Fab.?
3. *cupreus* Linn. — *Don.* 16. 554. — *Panz.* 75. 2. — var. *a cœrulescens* Linn.
4. *versicolor* Sturm's *Deut. Faun. pl.* 120. *f. b, c.*

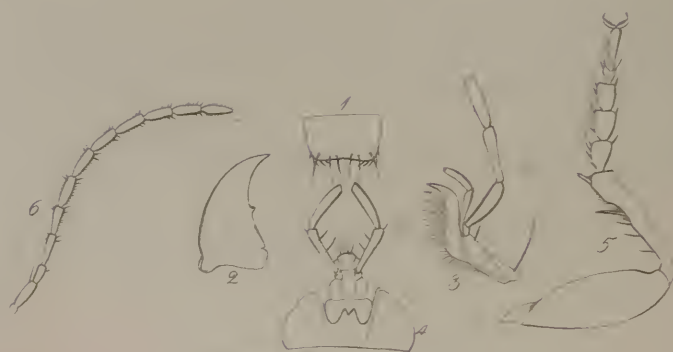
The 1st is a rare species in this country; it has been found in June in Norfolk, Hants, and Devon: it varies from a fine copper colour, to blue and black, with all the intermediate gradations of tint. The one represented in the plate is from the cabinet of Mr. Samouelle to whom it was transmitted from Devon, by Dr. Leach.

The 2nd is a handsome though not a rare species, occasionally appearing black: it is generally found under stones in April, May, and June.

The 3rd is one of our commonest insects, abounding from April to August, in fields, meadows &c., where at every step it is often seen running across our path. These beetles are also found in gravel and sand pits, where they live, and are well supplied with food from the numerous insects that fall into those traps, until they are destroyed either by the rays of the sun or excess of rain.

The 4th is probably nothing more than a small variety of *P. cupreus*.

The plant is *Hordeum murinum*, Wall Barley.



CALATHUS LATUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus cisteloides Ill.

CALATHUS *Bon., Panz., Leach, Lat., Dej., Sturm.*—*Harpalus Lat.*—*Carabus Linn., Fab., Marsh.*

Antennæ inserted before the eyes at the base of the mandibles, filiform, composed of 11 joints of nearly equal length, excepting the 2nd, which is scarcely more than half the length of the 1st; 3 first joints naked, the remainder pubescent, terminal joint elongate-ovate (fig. 6).

Labrum transverse-quadrate, slightly narrowed and emarginate before and ciliated with a few bristles, anterior angles rounded (1).

Mandibles slightly bent, acute, crenated near the base, one having a tooth near the middle on the internal side; the other, one nearer the base (2).

Maxillæ small, bent, acute, ciliated with bristles internally.

Palpi; *internal* extending rather beyond the apex of the maxillæ, biarticulate, basal joint clavate, terminal one bent; *external* long 4-jointed, basal joint minute, remainder nearly of equal length, 2nd joint the most robust, 3rd clavate, 4th cylindric truncated (3).

Mentum semiorbicular, deeply emarginate, producing a bifid lobe in the centre. *Lip* rather long and rounded, producing a few bristles. *Palpi* long, arising from scapes, 3-jointed, basal joint minute, 2nd and 3rd large of nearly equal length, slightly clavate, the former having a few bristles, the latter truncated (4).

Head *subtrigonal* small. Eyes small. Thorax *trapeziform*, depressed, twice as broad as the head. Scutellum minute, triangular. Coleoptera *elliptic*. Wings, generally rudiments only. Legs, hinder pair rather the longest. Tibiæ, anterior emarginate. Tarsi, anterior pair in the males with the 3 first joints dilated, the 2nd being the largest. Claws serrated (5, a fore leg of the male).

LATUS *Dejean.*—*frigidus Fab. Syst. Eleut.?*

Black shining. Head small. Thorax twice as broad as the head, lateral margins ferruginous, a shallow fovea on each side towards the base, where it is punctured and a channel down the middle. Elytra dull black, much broader than the thorax, especially towards the middle, with 9 minutely punctured striæ on each, the 1st abbreviated, the 4th and 6th having about 10 strong punctures on each, and the 9th marked with a row of stronger impressions. Palpi and antennæ ferruginous inclining to castaneous, the basal joint of the latter being the palest. Legs piceous inclining to black.

In the Cabinet of the British Museum.

It is not improbable that *Calathus* will very naturally follow *Pœcilus*, and lead by means of *C. piceus* of Marsham to *Synuchus*, with which genus it agrees in having serrated claws, a structure confined to the above genera, and to *Dolichus* and *Læmosthenes*, as observed by Latreille. The trophi are not unlike those of *Omaseus* and *Steropus*, but the dilated joints in the tarsi of the males are of a very different form; and the contour of the whole insect is so characteristic, that we can at once distinguish the species comprised in this natural genus.

The following are our British species :

1. *C. latus* Dej., Nob.
2. *Cisteloides* Ill.—*Panz.* 11. 12.—*frigidus* Fab.—*Sturm*, pl. 121.—*fuscipes* Gmel.—*flavipes* & *obscurus* Marsh.—Common everywhere.
3. *flavipes* Payk.—*Duft.*—*Sturm*, pl. 122. A.—*fulvipes* Dej., not of Fab.—Taken in Devon in September.
4. *fuscus* Fab.—*ambiguus* Oliv. 3. tab. 12. f. 147.—*rufangulus* Marsh.—Not uncommon in the hedges in Darent Lane during the summer, and I have found it in September under stones in Suffolk.
5. *melanocephalus* Linn.—*Panz.* 30. 19.—*Don.* 14. 480.—Common everywhere.
6. *littoralis* Leach's MSS.—Not uncommon in April, June and September on the sea-shore in Suffolk and Devon.
7. *piceus* Marsh. 444. 32.—This insect varies from the typical form in having the thorax narrower behind.—It is occasionally taken in Norfolk and Devon.

Four specimens of *C. latus* have been taken by Dr. Leach in Devonshire: one in a salt marsh near the river Lary, 26th May 1826; a 2nd in a coppice, 11th June, near Plymouth; and two others near Mutley and on Lipstone Hill in the same neighbourhood. This insect does not appear to have been either described or figured in any other work, and I am indebted to Mr. Samouelle for the above satisfactory account of its habitats.

The plant figured is *Asperula odorata* (Sweet Woodroof).



ARGUTOR LONGICOLLIS.

ORDER Coleoptera.

FAM. Carabidæ.

Type of the Genus, Carabus vernalis Fab.

ARGUTOR *Meg., Dej., Curt.*—FERONIA *Lat., Dej.*—PLATYSMA *Stur.*—
HARPALUS *Gyl.*—CARABUS *Fab. Duft.*

Antennæ inserted before the eyes, longer than the head and thorax, a little thickened and compressed at the apex, 11-jointed, basal joint ovate, 2nd small slender and obovate, 3rd as long as the 1st but slender, the remainder pubescent and gradually decreasing in length, the apical joint elongate-ovate (6).

Labrum subquadrate, rather broadest at the base, anterior margin slightly concave, with a few long bristles, the angles rounded and ciliated (1).

Mandibles elongate-trigonal, curved, acute, one with a small tooth near the middle of the inner margin (2), both notched at the base.

Maxillæ terminating in a curved acute horny claw, ciliated internally. *Palpi*, *internal* short, composed of 2 slender joints of equal length, basal one clavate, the other curved, sublunate: *external* long stout and 4-jointed, basal joint minute, 2nd long and stout, 3rd as long as the 2nd, clavate, very slender at the base, 4th rather shorter, fusiform-truncate (3).

Mentum transverse, deeply excavated, the centre produced and emarginate, the sides forming 2 large lobes (4). *Palpi* long and triarticulate, attached to large scapes, basal joint minute, 2nd and 3rd long and slender, of equal length, the former subcylindric, with 2 long hairs on the inside, the latter fusiform with a gland at the apex. *Labium* oblong, the anterior angles uncinated, the centre horny and furnished with 2 bristles.

Head ovate; eyes small and lateral. Thorax subcordate-quadrate, concave before, base straight, the angles acute: scutellum small and trigonal. Elytra elongate-ovate, depressed, apex rounded, scarcely emarginated: wings ample. Legs moderate: thighs short and stout, the anterior sometimes incrassated in the males (5): tibiae spurred, anterior the stoutest and notched internally: tarsi slender, 5-jointed, 4 basal joints obcordate in the anterior, the first 3 dilated in the males (5), apical joint clavate and slender as well as the claws.

LONGICOLLIS *Duft.?*—*Curt. Guide, Gen. 55. 7.*

Castaneous, sometimes inclining to piceous; antennæ palpi and legs ferruginous; thorax quadrate-cordate with a deep channel down the back, base only slightly punctured, except at the angles which are acute, a fovea on each side the centre forming a longish groove: elytra rather narrow with 8 punctured striae on each.

In the Cabinets of Mr. R. H. Spence and the Author.

THIS group makes so near an approach to *Omasus* (fol. 15), that they are merged in the genus *Feronia* by the Baron De-

jean. The best distinguishing character is the more fusiform shape of the terminal joints of the palpi, and there are slight differences in the labrum, mandibles, and antennæ, which will present themselves on a comparison of our plates.

The species called *Argutor Anthracinus* by Stephens, and incorporated with that genus by him, appears to be the *Oma-seus minor* of Dejean; I have therefore omitted it here, and described it with all the other species in the 2nd edition of this work under the genus *Oma-seus*.

* *Elytra with 2 short striæ next the scutellum.*

1. *pullus* Gyll.—*diligens* Sturm. *Deut. Faun. tab.* 117. f. A. var.? Found near London and in Devonshire.

2. *strenuus* Ill.—*Panz. fasc.* 38. pl. 6. Common in Norfolk and Suffolk, and near London in May.

3. *erythropus* Mars. p. 461. n. 78. Common everywhere on marshy ground and grassy banks, from March to October.

4. *interinctus* Sturm, t. 116. f. B.—*eruditus* Meg. "In a gravel pit near Hertford." *Step.*

** *The short striæ wanting.*

5. *longicollis* Duft. ?—*Curt. B. E. pl.* 666 ♂.—*negligens* Meg.

This I take to be the true *longicollis*, but I have specimens agreeing better with Sturm's fig. D, pl. 116, and measuring 3 lines, which also want the 3 punctures between the 2nd and 3rd striæ. Four specimens were taken by R. H. Spence, Esq., in October, under rejectamenta on the banks of the river Itching.

6. *inæqualis* Mars. 456. 65.—*Scalesii* *Step. var.*

On the banks of the Thames at Gravesend; in a garden at Darent, J. C.

7. *vernalis* Fab.—*Panz.* 30. 17.—*tibialis* Mars.

Spring and autumn everywhere, under stones in sandy places and gravel-pits; Belton Bog in moss, Mr. Paget.

8. *rufomarginatus* Curt. *Guide*, No. 11.

Piceous-black; trophi, base of antennæ and legs ferruginous: thorax orbicular nearly as broad as the elytra, concave before, truncated at the base, the angles not acute, lateral margins rufous, except anteriorly, base thickly punctured, with an impressed line on each side and a channel down the middle: elytra deeply striated, with 3 punctures between the 2nd and 3rd striæ.

I have only a male, which I took in Norfolk: it most resembles *A. vernalis*.

9. *inquinatus* Stur. t. 116. f. C.—*inquietus* Meg.

Taken near London.

The Plant is *Calamagrostis* (*Arundo*) *epigejos*, Wood Reed, communicated by Dr. Bromfield, from Ryde, Isle of Wight.



AGONUM AUSTRIACUM.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus marginatus Linn.

AGONUM Bonel., Leach, Sturm, Dej., Lat.—Harpalus Lat., Gyll.—Carabus Linn., Fab., Marsh., Panz.

Antennæ inserted before the eyes at the base of the mandibles, rather long and filiform, pubescent, excepting the three 1st joints; 11-jointed, the 1st rather long and robust, 2nd small, the remainder of nearly equal length, the 4th being scarcely shorter than the 3rd; the terminal joint attenuated (fig. 6).

Labrum transverse quadrate, rather broadest at the base, scarcely emarginate at the anterior margin which produces a few bristles (1).

Mandibles bent acute, having a few small teeth on the internal margin close to the base (2).

Maxillæ bent, acute, ciliated with strong bristles on the internal margin. *Palpi*; *internal* biarticulate, basal joint clavate, terminal joint slightly bent and tapering to the extremities; *external* long, 4-jointed, basal joint small, 2nd long robust, 3rd and 4th shorter, of equal length, the former clavate truncate, the latter fusiform truncate (3).

Mentum transverse short trilobed, the centre lobe triangular simple.

Labium elongate-quadrate, lobed on each side, the centre dilated at the extremity. *Palpi* arising from long scapes, 3-jointed, basal joint small, 2nd and 3rd of equal length, the former clavate, the latter fusiform truncate (4).

Head somewhat oblong. Eyes small. Thorax flat, sides convex, posterior angles rounded. Scutellum triangular. Coleoptera oblong, depressed, emarginate at the apex, generally with punctures between the 3rd and 4th striæ. Wings ample. Legs formed for running, posterior the longest. Tibiæ, anterior emarginate. Tarsi 5-jointed, anterior pair with the 3 first joints dilated in the males. Claws simple (5, a fore leg).

AUSTRIACUM Fab. Syst. Eleut. t. 1. p. 198. n. 157.—nigricorne Panz. 6, 4.—Oliv. pl. 12. f. 143.—modestum Sturm.

Smooth, shining. *Antennæ* brown, 3 first joints shining black. Head green inclining to cupreous. Thorax cupreous with a green tinge, a channel down the centre and a shallow thickly punctured fovea on each side near the posterior angles. Elytra bright green sometimes inclining to yellow, with 9 punctured striæ on each, that next the scutellum abbreviated, 4 minute foveæ between the 3rd and 4th striæ and a row of deep impressions upon the last. Legs black.

In the Cabinet of the British Museum.

As writers differ very much in their ideas respecting the affinities of our genus, we shall wait until we have gained a better

knowledge of other groups of the Carabidæ, before we give an opinion upon so difficult a question; and as there is nothing remarkable in the trophi, we shall pass on to the synoptic table, which will be of more real utility than speculations.

The following 19 species (with the exception of the 3rd) are in the Author's cabinet:

* Thorax suborbicular.

1. *A. marginatum* Linn.—Panz. 30. 12.—June and July, marshes.
2. *sexpunctatum* Linn.—Panz. 30. 11. *Samouelle*, pl. 3. f. 20.—May. Sexton Wood, Bedingham, Norfolk; and Coombe Wood near London.
3. *Austriacum* Fab.—Taken by the late Mr. J. Cranch, in Devonshire.
4. *parumpunctatum* Fab.—Panz. 92. 4.—*cærulescens* Marsh.—8-punctatus Marsh.—April, May, and June, common everywhere.
5. *viduum* Ill.—Panz. 37. 18.—*vernale* Payk.—Common in Norfolk.
6. *Æsopus* Leach.—Taken near London.
7. *versutum* Sturm's *Deut. Faun. tab.* 132. A.—Ditto.
8. *mæstum* Duft., Sturm's *D. F. t.* 134. B.—Ditto.
9. *afrum* Sturm's *D. F. tab.* 134. A.—Car. *afer* Duft.—Common in Norfolk.
10. *atratum* Dahl.—Sturm's *D. F. tab.* 135. A.—*nigrum* Dej.
11. *Bogemannii* Gyll. v. 3. p. 697.—From Dr. Leach.

** Thorax somewhat obovate.

12. *nitidum* Steph.—From Mr. Blunt's cabinet.
13. *gracile* Sturm's *D. F. tab.* 136. A.
14. *pullum* Leach?
15. *piceum* of the *Linnæan Cabinet*.—April 1810, taken at Horning, Norfolk.
16. *Simpsoni* Spence.—April, moist banks.
17. *picipes* Fab.—*lutescens* Panz. 30. 17.—April to July, moist banks.
18. *pelidnum* Payk.—Gyll.—Sturm's *D. F. tab.* 135. B.—Taken in Norfolk and near London.
19. *livens* Gyll.—*bipunctatum* Sturm, *tab.* 133. B.—Norfolk, and upon a maple-tree at Bognor, Sussex, the beginning of August.

Fabricius being the first author that described and characterized *A. Austriacum*, we have adopted his name instead of "*nigricorne*," which would only be assisting to perpetuate the error into which Olivier and Panzer first led us, by copying Fabricius's description of *Carabus nigricornis* (which is a *Chlænius*), and figuring *Agonum Austriacum* to illustrate it: Panzer has corrected this error in the "*Kritische Revision*."

The plant is *Serratula tinctoria* (Common Saw-wort).



CALLISTUS LUNATUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus lunatus Fab.

CALLISTUS Bonelli, Panz., Leach, Dej.—Carabus Fab., Oliv., Marsh.

Antennæ inserted before the eyes, at the base of the mandibles, compressed, subclavate, pubescent, 11-jointed, basal joint subovate, 2nd minute, 3rd and 4th of equal length, the former being more slender, the remainder decreasing in length to the terminal joint which is ovate (fig. 6).

Labrum transverse quadrate, slightly emarginate and producing a few bristles on the anterior margin (1).

Mandibles alike, rather small and slender, bent, very acute, armed with 4 small teeth near the base on the internal side (2).

Maxillæ very slender, slightly bent, acute, ciliated on the internal margin. *Palpi*; *internal* forming one long compressed lobe; *external* 4-jointed, basal joint minute, 2nd robust, 3rd clavate, 4th elongate-ovate, truncated (3).

Mentum broad transverse, trilobed, the centre one trigonate, not emarginate. *Lip* membranous quadrate, each side produced into a spine. *Palpi* attached to 2 scapes, 3-jointed, basal joint minute, 2nd and 3rd of equal length, the former clavate pilose, the latter fusiform terminated by a vesicle (4).

Head subtrigonate. Eyes small. Thorax broader than the head cordate truncate. Scutellum very minute. Coleoptra slightly convex, oval, broader than the thorax. Wings as long as the body. Legs formed for running, posterior pair the longest. Tibiæ, anterior emarginate. Tarsi 5-jointed, 3 basal joints dilated in the males (5, a fore leg).

LUNATUS Fab. Ent. Syst. v. 1. pars 1. p. 163. n. 172.—Marsh. Ent. Brit. 466. 91.

Pubescent. Head violaceous tinged with green, strongly and thickly punctured; mouth ferruginous, palpi inclining to brown. Eyes and antennæ black, the 1st and 2nd joints of the latter ochraceous. Thorax dull rufous, coarsely punctured, with an obscure channel down the middle. Elytra ochraceous, becoming straw-coloured towards the extremity; a black spot on each shoulder, a large black spot on each side near the middle united on the margin to a waved fascia nearer the apex of the same colour; 9 faintly punctured striæ on each elytron, that next the scutellum very short. Legs black; base of the thighs, middle of the tibiæ and claws ochraceous: the tarsi are brown.

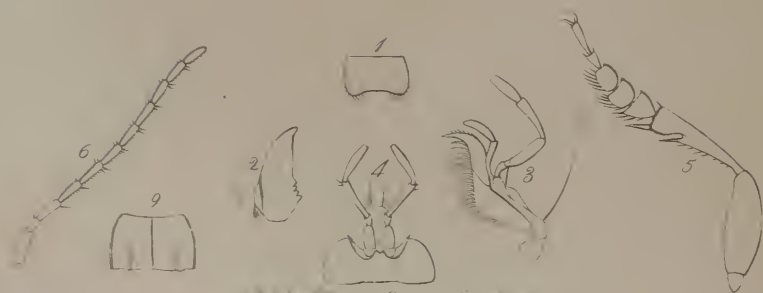
In the Author's and other Cabinets.

THE genus *Callistus*, which contains but one species, is characterized by a small mouth, the parts composing it being weak: all the joints of the antennæ are pubescent, although it is common with the *Carabidæ* to have the 3 first joints naked, or at most producing only 2 or 3 bristles on each; the hinder tibiæ are very long; and the internal maxillary palpus is not biarticulate but forms one lobe. We wish here to observe, that the example dissected was a male in which the external maxillary palpi were deficient; they were consequently drawn from our cabinet specimen, which may have slightly affected their relative proportions.

Callistus lunatus is not uncommon in France and other parts of the continent, where it is found under stones; but in this country it is a very local if not a very rare insect, being attached to chalky districts, particularly those of Kent, in which county a specimen was captured the beginning of last May under a flint stone on a chalky bank near Sittingbourn, by Mr. A. Mathews of Turnham Green: the year previous 2 specimens were taken the middle of June, one in a corn-field, the other in Coomb Wood, near Dover, by Mr. R. L. Leplastrier*, of whom we purchased the individual figured.

The plant is *Scabiosa columbaria* (Small Scabious).

* We recommend Entomologists who visit Dover to call upon Mr. Leplastrier of Snargate Street, who disposes on very reasonable terms of British Insects principally collected by his son in the neighbourhood.



Drawn by C. Curtis London Sept 1 1820

CHLÆNIUS SULCICOLLIS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus nigricornis Fab.

CHLÆNIUS *Bon., Panz, Leach.* Harpalus *Gyl.* Carabus *Fab., Payk., Marsh.*

Antennæ inserted at the base of the mandibles, before the eyes, 11-jointed, 3 first joints smooth, the remainder pubescent, 1st joint robust, 2nd short, 3rd as long as the first, clavate, the following of equal length, somewhat clavate, excepting the last which is rather longer and ovate (f. 6).

Labrum transverse, quadrate, emarginate, anterior angles rounded, ciliated, sides coriaceous (1).

Mandibles porrected, slightly curved and acute, with 4 minute teeth on the internal edge, near the base (2).

Maxillæ bent at the apex, acute, ciliated. *Palpi* 2, internal scarcely longer than the mandibles, 2-jointed, 1st joint clavate, 2nd bent, attenuated at both ends; external long, 4-jointed, 1st joint small, 2nd and 3rd long, the former robust, the latter clavate, 4th shorter nearly cylindric, truncate (3).

Mentum broad, bilobed, slightly acuminate at the anterior angles, having an emarginate tooth in the centre. *Palpi* arising from long scapes, 3-jointed, 1st joint small, 2nd and 3rd of equal length, the former clavate, the latter attenuated at both ends, truncate. *Lip* long, extending far beyond the mentum, anterior margin straight, with a small process on each side (4).

Thorax narrowed anteriorly, less so in some than in others, sides with a narrow margin, and an impressed line on each side at the base (9). Elytra sometimes elongated, slightly sinuated at their extremity, punctulate, frequently pubescent. Wings 2. Scutellum small. Tibiæ, anterior emarginate, spined. Tarsi 5-jointed, with the 3 first joints dilated in the males (♂ a fore leg).

SULCICOLLIS *Payk. Fn. Suec. l. 153. 72. Gyll. Ins. Suec. v. 2. p. 130. n. 41.*

Femur black. *Antennæ*, excepting the 3 first joints, covered with fuscous hair. Head smooth, shining. Thorax narrowed and sparingly punctured before, scabrose behind, where it is covered with short brown hair, sides scabrose, slightly reflexed, a channel down the centre, with 4 longitudinal elevated shining lines, the exterior one furcate, and large punctures between them. Scutellum smooth. Elytra scabrose, thickly covered with short brown hairs, interspersed with a few aureous ones, an abbreviated stria next the scutellum and 8 others extending the whole length on each elytron.

In the Author's Cabinet.

THIS genus, established by Professor Bonelli, embraces near 40 species from every quarter of the globe, presenting considerable variety of outline in the thorax, which will afford very good characters for several subgenera or divisions: In confirmation of this assertion it is only necessary to refer to the figures in the plate, the thorax of *C. sulcicollis* being triangular, truncated anteriorly, whilst that of *C. nigricornis* (fig. 9) is nearly quadrate; and in *C. vestitus* the difference is even greater, the thorax being slightly narrowed behind.

Chlœnius sulcicollis is figured in the 125th plate of Sturm's beautiful Insects of Germany (Deutschlands Fauna), which enabled me to identify our insect, which had stood in the cabinet many years without a name. It appears to be very rare upon the Continent, where it is found under stones in moist situations. I am indebted to my brother for the female described, which is the only British specimen known; he found it dead under the cliffs at Covehithe, Suffolk, where I have frequently sought for it since without success.

There are 3 other species inhabitants of this country which our insect will follow; viz.

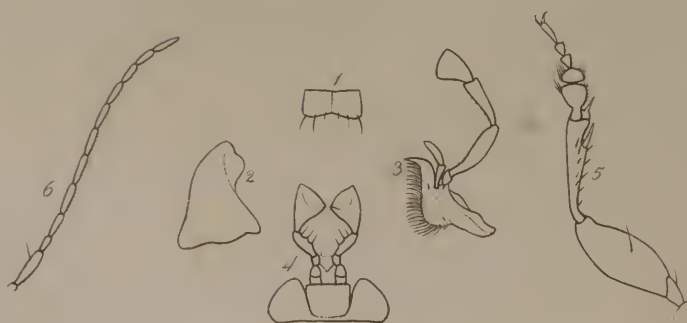
1. *C. vestitus* *Fab.*, *Panz.* 31. 5.—found as early as March on moist banks and in woods.

2. *C. nigricornis* *Fab.*—found upon moist banks and in marshes in April.

3. *C. holosericeus* *Fab.*, *Panz.* 11. 9.—very rare, taken by the Rev. T. Skrimshire in Norfolk in the spring.

Like most of the *Carabidæ* they are vernal insects: many of the exotic species are very beautiful; green is a prevailing colour amongst them, and they frequently have a margin of yellow or ochre-colour round their elytra.

The plant figured, *Bunias Cakile* (Sea Rocket), was gathered in the neighbourhood where the insect was found.



LICINUS DEPRESSUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus cassideus Fab.

LICINUS *Lat., Clair., Gyl., Sturm.* Carabus *Fab., Oliv., Payk., Panz.*

Antennæ inserted in a cavity before the eyes, nearly filiform, 11-jointed, 3 first joints shining, with a few hairs, the remainder very pubescent; 1st joint long, robust, clavate, 2nd small, 3rd not so long as the 4th, the remainder decreasing in length to the last, which is as long as the 4th, and elongate-conic (fig. 6). *Labrum* small transverse, corneous at the margin slightly emarginate, with 6 bristles inserted near the margin (1).

Mandibles naked, broad at their base, truncated at the apex which is slightly emarginated (2).

Maxillæ small, bent, acute, dilated below internally, ciliated with rigid bristles: *Palpi* 2, internal scarcely longer than the mandibles, 2-jointed, 1st joint clavate, 2nd cylindric-conic; external very long, 4-jointed, 1st joint minute, 2nd very long clavate, 3rd long clavate-truncate, 4th large, hatchet-shaped (3).

Mentum very broad, bilobed, the centre membranaceous, quadrate, from the anterior margin of which arise scapes, coriaceous at their base, membranaceous at their apex, to which the palpi are attached: *Palpi* long, 3-jointed, 1st joint minute, 2nd long, with 3 bristles on the internal side, 3rd very large hatchet-shaped: *Labium* small, extending as far as the 1st joint of the palpi, membranaceous at the edges, slightly emarginate (4).

Clypeus deeply emarginate. *Eyes* small. *Head* obtuse. *Thorax* orbicular, emarginate before and behind. *Scutellum* minute. *Body* depressed. *Elytra* sinuated at their extremity. *Wings*, sometimes none. *Tibiæ*, anterior emarginate, spined. *Tarsi* 5-jointed, the 2 first joints dilated in the males (5, fore leg of a male, from which sex all the dissections are drawn).

DEPRESSUS *Payk. Faun. Suec.* 1. 110. 18. *Gyl. Ins. Suec.* 2. 73. 1.

Cassideus, *Ill.* 1. 159. 23. *Cossyphoides*, *Duft.*

Black shining. Head somewhat orbicular smooth, sparingly punctured. Thorax with the posterior margin less concave than the anterior, rather thinly and coarsely punctured, with a channel down the middle and a fovea at each posterior angle. *Elytra* (dull black in the female) with an abbreviated punctured stria next the scutellum and 8 others extending the whole length, equidistant, the surface between minutely punctured. *Antennæ* towards the apex fuscous. *Labium*, spines of *tibiæ* and claws ferruginous.

In the Author's and other Cabinets.

THE genus *Licinus* is one of the valuable additions made to our Fauna since the publication of the "*Entomologia Britannica*," and I am happy in the opportunity of first recording it as a native of Britain.

Although *Licinus* has many characters in common with *Panagæus* and *Badister* (which last was formerly considered by Latreille to be a *Licinus*), it is readily distinguished from the former by its different habit, as well as by the obtuseness of the mandibles, and the absence of the emarginate process in the centre of the mentum, so common to the *Carabidæ*: from the latter it differs in having the posterior angles of the thorax rounded, in the emarginate elytra, in the triangular form of the terminal joint of the external maxillary palpus, and in having only 2 joints of the anterior tarsus dilated.

The species selected to be figured was taken by my brother the 5th November 1810, upon Mousehold Heath, near Norwich, under a stone, with numerous fragments of other small *Carabidæ*; from which we are led to imagine that it feeds upon other insects, although the mandibles do not appear to be so well adapted to such uses as those of most of the *Carabidæ*. Mr. Sparshall found another specimen the 15th May the following year upon a bank in the same neighbourhood; and several were found afterwards by the late Mr. Griffin in a gravel-pit not far from the same city. It has also been taken I believe in Norfolk by the Rev. T. Skrimshire, and in Yorkshire by Mr. Watson; and from the females having dull elytra, that sex I understand has been called by the Rev. Mr. Kirby in his MSS., *Carabus Watsonii*.

Carabus silphoides Fab. (Sturm's *Deut. Faun.* tab. 74. f a) is another species of this genus not ascertained to be British until I took one running upon the Castle-hill at Dover the middle of August 1820: there are, however, a pair in the British Museum that Dr. Leach purchased in a collection formed at Dover. It inhabits also Italy, the South of France, and other warm countries of Europe.

Carabus cassideus Fab. (Clairville's *Ent. Helv.* tab. 16. f a), *emarginatus* Oliv. and Lat., the species from which the dissections were made, is also believed to be a native of Britain, from a specimen in our Museum which is said to have been taken here: it is certain that our climate is more likely to produce this species than the last, since it is not only found in the South of Europe, but Clairville informs us even in Prussia, under stones.

Anagallis arvensis (Scarlet Pimpernel or Poor-man's Weather-glass) is figured with the insect.



BADISTER CEPHALOTES.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus bipustulatus Fab.

BADISTER *Clairv., Lat., Panz., Bonel., Leach, Sturm, Dej.*—*Amblychus Gyll.*—*Carabus Fab., Marsh.*

Antennæ inserted before the eyes, at the base of the mandibles, filiform 11-jointed, basal joint slightly robust, naked, 2nd minute, the remainder pubescent nearly of equal length except the last which is longer and ovate (fig. 6).

Labrum transverse bilobed, being deeply emarginate, with a few very long bristles at the apex (1).

Mandibles robust, bent, obtuse, emarginate at the apex, dilated at the base (2), one with a tooth on the internal edge.

Maxillæ small, bent, acute, strongly ciliated on the internal margin. *Palpi* 2, internal not extending beyond the apex of the maxilla, compressed, 2-jointed, terminal joint conical; external very long, 4-jointed, 1st joint small, 2nd long robust, 3rd clavate, 4th robust elongate conic (3).

Mentum transverse bilobed, lobes small. *Palpi* long, arising from scapes, 3-jointed, basal joint small, 2nd long with two bristles on the internal side, 3rd long robust, sub-obovate, pilose.

Lip extending beyond the 1st joint of the palpi, bilobed and produced in the centre (4).

Head *ovate*. Eyes *small, lateral*. Neck *none*. Thorax *quadrate* (9), or *subcordate*, angles rounded, anterior margin concave, posterior straight, with two foveæ at the base. Body depressed. Scutellum triangular. Elytra not sinuated at their extremity. Wings two. Tibiæ, anterior emarginate, spined. Tarsi 5-jointed, anterior with the three first joints dilated in the males (5, fore leg of a male).

CEPHALOTES *Dej. Spec. Coleop. t. 2, p. 406, n. 1.*—*Megacephalus Kirby's MSS.*

Smooth, shining, rufous ochre. Head large, nearly as broad as the thorax, black; trophi ochraceous, antennæ of the same colour, the 2nd and two or three following joints piceous. Thorax rather broader than the head, short, narrowed behind, with a channel down the centre and a fovea near each posterior angle. Elytra with a slight cyaneous gloss and eight striæ on each elytron, that next the suture being divided at its origin, the 3rd and 4th, 5th and 6th being united at their termination, posterior portion black, the suture, external margin, and a sublunular spot towards the apex, extending nearly across, the same colour as the anterior part.

In the Cabinets of Mr. Kirby and the Author.

THE dissections were made from a male of *B. bipustulatus* Fab., which it is necessary to mention because they do not quite agree with those of Sturm in his pretty *Deutschlands Fauna*, pl. 75, which he represents to be taken from the same species as our own; but from the form of the thorax at fig. A, it does not appear to be the insect which in this country is considered to be the Fabrician species: the trophi in the above plate approach much nearer to those of *Licinus* than our dissections do, in which the bilobed labrum, the differently formed mentum, the terminal joint of the labial as well as the maxillary palpi at once afford strong and distinctive characters. *Badister* may also be distinguished from *Licinus* by the rounded apex of the elytra, and the males are known by the three dilated joints of the anterior tarsi.

All the species hitherto noticed are European, and described in a beautiful work entitled "*Species général des Coléoptères de la collection de M. le Comte Dejean*:"—of these at present we can find but two preserved in the cabinets of this country.

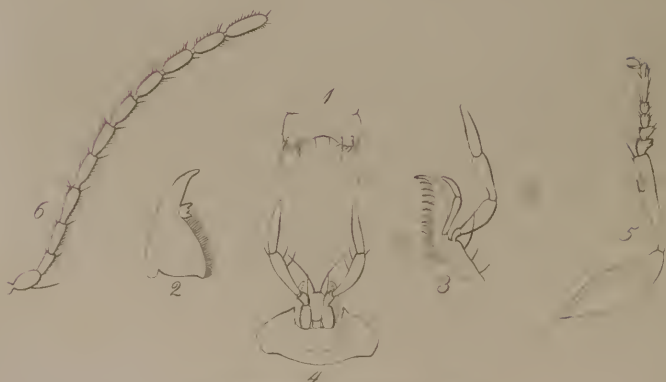
Badister bipustulatus *Fab. Ent. Syst. t. 1, pars 1, p. 161, n. 164.*—*Don. Brit. Ins. v. 15, pl. 516.*—*Panz. Faun. Germ. 16. 3.*

Found under stones from April to October, and is not uncommon.—Its thorax is represented at fig. 9, the better to enable the student to distinguish it from the following.

Badister cephalotes.

A very rare insect in this country, which has never before been figured. Mr. Kirby's specimen was taken by himself 14 or 15 years ago at Wittersham in Kent, and obligingly communicated with the MS. name of "*megacephalus*," which we should have adopted had it not been described in the work before cited. Our specimen was taken at Darent in the same county. This species is readily distinguished from the others by its large head, the lunular spot near the apex of the elytra, and the shape of the thorax.

The plant is *Ajuga reptans* (Common Bugle).



Staph. curvipes (Linn.)

BLEMUS MICROS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus, *Bembidium paludosum* Gyll.

BLEMUS Zieg., Dej., Steph.—*Trechus* Sturm.—*Bembidium* Gyll.

Antennæ inserted before the eyes at the base of the mandibles, rather long robust, capillary and pubescent, 11-jointed, basal and 2nd joints rather the shortest, of equal length, the former the most robust, subovate, the 3rd and following of equal length, terminal joint considerably the longest and ovate (6).

Labrum broad and short, rather deeply emarginate, producing 6 long bristles, the lobes also ciliated with curved rigid bristles (1).

Mandibles porrected, bent and acute, densely ciliated on the inside from the middle to the base, one having a bifid, the other a trifid tooth in the centre (2).

Maxillæ forming a curved and acute lobe ciliated and producing 7 or 8 strong spines on the inside. *Palpi*; *internal* biarticulate, the basal joint twice as long as the terminal one: *external* long robust and 4-jointed, basal joint small, the remainder long of equal length, 2nd incrassated, slender at the base, 3rd subclavate, 4th attenuated to the apex which is obtuse (3).

Mentum broad, somewhat transverse-oval, the basal margin being convex, emarginate before, forming 2 acute angles and an emarginate lobe in the centre. *Labium* broad, slightly produced in the centre which is furnished with 4 long bristles, the sides forming 2 slender and curved lobes ciliated internally. *Palpi* attached to 2 large scapes, long and triarticulate, basal joint short, 2nd long robust subclavate, 3rd nearly or quite as long, more slender and attenuated to the apex which is obtuse (4).

Head subovate with a distinct neck. Eyes small and lateral with an oval space round them appearing swelled. Thorax subquadrate cordate, the posterior angles acute, not touching the Elytra which are more or less linear. Scutellum small. Wings ample. Legs moderately long. Thighs rather robust. Tibiæ, anterior notched on the inside. Tarsi 5-jointed, anterior with the 2 first joints dilated in the males and very pilose beneath (5, a fore leg).

MICROS Herbst., Panz., Ill.—Curtis's Guide, Gen. 71. 1.

Narrow, smooth, pubescent and ochraceous. Head and thorax producing a few long hairs, the former castaneous, black across the middle and not pubescent, the latter narrowed considerably at the base, subcastaneous, with a deep channel down the middle, transversely depressed at the base, with a longitudinal channel on each side near the posterior angles which are acute and slightly reflexed. Elytra ochraceous-ferruginous, with a triangular space at the base and a broad fuscous stripe with a blueish tint on each elytron, 6 or 7 punctured striæ very indistinct on the disc and semicircularly united at the apex, with 2 small foveæ, between the 3rd and 4th, each producing a bristle.

In the Author's and other Cabinets.

THE *Carabus Discus* of Fabricius appears to be the type of Ziegler's genus *Blemus*; but as I had not a specimen for dissection, I have drawn the characters from *B. paludosus*, which I have no doubt belongs to the same group, and not to *Trechus*, as was stated at folio 203. The *Blemi* are very nearly related to *Aëpus*; yet there are good distinctive characters: the most remarkable one perhaps in *Blemus* is, the ciliated margin of the mandibles.

The following are British species.

1. *B. Micros* *Herb.*—*Panz.* 40. 4.—*Ill.*, *Verz.* p. 180.—*Curtis's B. E.* pl. 310.—*rubens Steph.*, and *discus Steph.*, but not of *Fab.*

There can be little doubt that this is the true *C. Micros*, although Panzer's figure is rather too pale; and it certainly is neither Fabricius's *C. Discus*, nor his *C. rubens*.

This insect is found in damp gardens near London, in April and May, and in meadows and marshes. Mr. Heysham takes it near Carlisle in August under rejectamenta.

2. *B. longicornis* *Sturm. Deut. Faun.* 6. 151. A.

I took a single specimen the 30th of June, under rejectamenta, on the sands near Broughton, Lancashire.

3. *B. Discus* *Fab. Ent. Syst.* 1. 164. 178.—*unifasciatus Panz.* 38. 7.—*Marsh.* 466.

If the Fabrician description were very accurate, his *C. Discus* could not belong to this genus; for he says the thorax is rounded. In Fabricius's last work, however, he refers to the above figure of Panzer; and Illiger does not express the least doubt concerning it.

Mr. Hobson takes this pretty insect on the banks of the Irwell in July; it is found also in July in the neighbourhood of London, and in Norfolk and Suffolk.

4. *B. paludosus* *Gyl.* 2. 34. 20.—*rubens Steph. Cat.*

Fabricius's *C. rubens* appears to agree much better with the insect that has been called *Ocys tempestivus*.

This insect is universally distributed, having been found in Zetland, on the Grampian Hills, near Carlisle, Hull, and Norwich, on the sand hills at Swansea, and in Hampshire.

5. *B. pallidus* *Sturm, tab.* 153. A.

This insect I first discovered in August under clods of earth at the base of the cliff at the back of the Isle of Wight; I found one dead last May in the Isle of Portland, and took another under the cliff at Dover in July.

The *B. Ephippiger* or *B. consputus* of Duftschmid has been placed in this genus; it is however more nearly related to the *Trimorphi* of Stephens, and may be at once distinguished from the *Blemi* by the absence of the elevated oval spaces round the eyes.

The plant is *Beta maritima* (Sea Beet).



Lobelia dortmanna
y. II R. 80

Mar 1 1888

AEPUS FULVESCENS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Aëpus fulvescens Leach.

AEPUS Leach, Sam.—Blemus Dej.

Antennæ inserted before the eyes at the base of the mandibles, rather long, filiform and pubescent; 11-jointed, basal joint robust ovate, 2d rather slender, 3d somewhat longer, the remainder ovate, pedicled, the terminal one the longest, and conical (fig. 6). *Labrum* transverse, bilobed, ciliated with rigid bristles and producing a few long ones (1).

Mandibles slender, slightly bent and acute, producing several sharp teeth on the internal side, nearer the base in one than the other (2).

Maxillæ long and slender, terminated by a strong bent claw, internal margin ciliated with short strong spines. *Palpi* naked; internal biarticulate, the basal joint long clavate, the terminal one short; external 4-jointed, basal joint minute, 2d subglobose, 3d the longest, robust, clavate, 4th rather slender and attenuated (3).

Mentum transverse, emarginate, producing a blunt tooth in the centre, the lobes acuminate in front. *Labium* small, furnished with a slender lobe on each side and 2 bristles in the middle. *Palpi* large, nearly as long as the maxillary, arising from scapes, 3-jointed, basal joint small, 2d long robust, 3d nearly as long, slender and attenuated (4).

Head elongate-ovate; neck distinct. Eyes very minute. Thorax obcordiform, truncated before and behind, not touching the elytra. Coleoptera depressed, broader than the thorax. Scutellum minute. Elytra smooth, not striated, producing a few hairs, slightly emarginated at the apex. Wings none. Legs rather long, compressed. Thighs broad. Tibiæ simple, anterior very broad and deeply notched, ciliated and spined. Tarsi 5-jointed, the articulations subcordiform, excepting the terminal one which is the longest, the penultimate in the anterior pair producing a rigid bristle, curved towards the Claws which are long slender and simple (5, a fore leg).

FULVESCENS Leach.—Sam. Ent. Comp. p. 149, Gen. 24.

Depressed, smooth, shining, ochraceous. Anterior portion of the head and antennæ inclining to castaneous: eyes black, behind which are a few hairs. Thorax with a narrow margin and a channel down the centre not reaching to the anterior edge. Elytra with 3 imperfect furrows on each, irregularly and obscurely punctured and producing some scattered hairs.

In the Author's and other Cabinets.

THE view which Latreille has taken in his *Familles Naturelles*, of that portion of the Carabidæ to which our genus belongs, appears to be more artificial than the outline given by Dejean in his Catalogue; for the Trechi and Bembidia are so nearly related, that it will be found difficult to decide where a line might separate them. In the work first alluded to, however, very remote situations are assigned to them; the greater portion of the Carabidæ, including the Harpalidæ and the section with simple anterior tibiæ (called Abdominales), being forced between them; whereas by merely transposing the two groups Blemus and Trechus of the Catalogue, nearly the following arrangement presents itself.

1. Stenolophus, the type being the *C. Vaporariorum* of Fab. not of Linn.; it has the penultimate joint of the tarsi bilobed.
2. Trechus paludosus Gyll. will probably be the type. It may be observed, that the *C. tempestivus* Panz. (*rubens* Fab.) belongs to this genus; but the *tempestivus* of our cabinets is a larger insect, and one of the Bembidia.
3. Blemus Discus Fab., &c.
4. Epaphius secalis Leach.
5. Aëpus fulvescens Leach, Sam., Nob. This singular insect was first discovered by Dr. Leach, under stones at the mouths of the rivers Tamer and Yalm on the southern coast of Devonshire, in May and June; and it was last year taken in July, at Ballyhullish Ferry in Scotland, by Mr. Francis Walker. The strongly marked trophi, minute eyes, and armed penultimate joint of the tarsi, sufficiently justify the adoption of this genus.
6. Cillenum laterale Leach, Nob.—*C. areolatus* Creutz. also belongs to this genus.
7. Tachys pusillus Dej., and the other Bembidia.

The Comte Dejean has placed two European genera after Stenolophus; that is to say, Masoreus Zeig., with which I am unacquainted, and Apotomus Hoff., which Mons. Latreille places with the Scaritidæ: should this last be related to the Trechi, it may find a place probably near to Epaphius, which has somewhat the habit of the Scaritidæ or Bipartiti.

The plant *Lobelia Dortmanna*^{*} (Water Gladiole), I gathered close to the shores of Loch Katrine and Ellen's Island the beginning of August.



Pl. by J. Currier Feb. 1820

CILLENUM LATERALE.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Cillenum laterale Leach.

CILLENUM *Leach.*—Cillenus *Sam.*—Blemus *Zieg., Dej.*—Trechus *Bon.*

Antennæ inserted before the eyes at the base of the mandibles, subclavate, pilose and pubescent, 11-jointed, basal joint robust, oblong, 2nd short, 3rd long, 4th and following moniliform, terminal joint as large as the basal one, conical (fig. 6).

Labrum transverse, concave in front and ciliated with a few bristles, anterior angles rounded, slightly emarginate and producing a few bristles (1).

Mandibles porrected, rather long and slender, slightly bent and acute, with 1 large and 2 small teeth at the base (2).

Maxillæ bent, corneous, and acuminate at the apex like a claw, internally ciliated with rigid bristles. *Palpi*; *internal* biarticulate, basal joint scarcely so long as the terminal, which is bent and subfusiform: *external* robust, 4-jointed, basal joint small, 2nd and 3rd subclavate, the latter pilose, rather the longest and stoutest, 4th slender and short (3).

Mentum not very large, transverse, deeply emarginate, side lobes acuminate, central one obtuse. *Labium* small, producing a narrow lobe on each side. *Palpi* arising from short scapes, triarticulate, basal joint minute, 2nd long very robust, subclavate pilose, 3rd very small slender and short (4).

Head broad and long. Eyes not very large nor prominent. Thorax scarcely broader than the head, cordiform, truncated before and behind, posterior angles slightly reflexed and acuminate. Scutellum very minute. Coleoptera depressed, linear, elongate-ovate, slightly emarginate towards the apex. Wings very small. Tibiæ spurred, anterior notched and spined. Tarsi 5-jointed, rather short, the anterior dilated, especially in the males, the 1st joint producing a strong spine at each angle, the 2nd and 3rd one at the internal angle only (5, a fore leg).

LATERALE *Leach MSS.*—lateralis *Sam. Ent. Comp. p. 148. Gen. 21.*

Ochreous. Mouth and antennæ castaneous excepting the 3 or 4 basal joints of the latter. Head and thorax shining, very minutely punctured, green with a cupreous tinge, especially the latter, which has a channel down the centre and a few furrows in the middle at the base. Scutellum blackish. Elytra very finely shagreened, cupreous or æneous, excepting a portion at the base; 9 obscurely punctured striæ on each, the sutural one abbreviated, the 2nd and 3rd united at their origin, and the 4th with four foveæ on the internal side, each producing a bristle.

In the Author's and other Cabinets.

IN the *Entomologist's Useful Compendium*, the characters of *Cillemum* are introduced from the MSS. of Dr. Leach, who first distinguished it as a genus; and it is very naturally placed between the *Bembidia* and *Trechus*, to the former of which groups it is allied by the structure of the organs of manducation, especially the palpi which have hitherto been unnoticed, and to the latter (particularly that portion called *Blemus*) in habit.

The strongly armed anterior legs of these predaceous insects are admirably adapted to their habits of life: the spurs as they are termed, with which the four posterior legs of the *Adephagi* and other tribes of beetles are furnished, are for the purpose of enabling them to secure a firm footing upon the objects they wish to destroy and tear to pieces; and there is little doubt but the notched anterior legs of the *Carabidæ* are to seize and retain their prey; for the limb or antenna of an insect being received into the notch, and at the same time the moveable spine at the lower angle being pressed upon it, the victim would be effectually secured. In the species before us a structure is exhibited which we have never before observed, and which in a great measure confirms our opinion; we allude to the two spines produced at right angles below the notch, between which, the end of the moveable spine arising from the opposite angle is received; those also attached to the basal joints of the tarsi are unusually strong.

Cillemum laterale is a very local insect in this country, and appears to be scarcely known upon the Continent. It was first discovered by Dr. Leach, who found it near Porto Bello on the Firth of Forth, in the months of May, June, and July; and it has since been taken in abundance at Cley on the coast of Norfolk by Mr. Brightwell.

Mr. Dale took a very minute carabideous insect under a stone at Charmouth, near Lyme Dorset, the 11th of last May, whose trophi, as well as we can ascertain, resemble those of *Cillemum*, but in habit it is more like *Trechus*; we have named it *C. minimum*.

The plant is *Coronopus Ruellii* (Swine's Cress).



Cardamine patensis
q. h. n. 11. 28



by *W. H. F.*

ELAPHRUS ULIGINOSUS.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Cicindela riparia Linn.

ELAPHRUS *Fab., Lat., Oliv., Gyll., Dej.*—*Cicindela Linn., Marsh.*

Antennæ inserted before the eyes at the base of the mandibles, rather short and robust, subclavate, and pubescent excepting the 3 first joints; 11-jointed, basal joint ovate, 2nd small, 3rd and 4th of equal length clavate, the former slender, the 5th and following subovate, terminal joint ovate (fig. 6).

Labrum transverse quadrate, angles rounded, anterior margin sinuated, producing a few long bristles (1).

Mandibles slightly bent, rather slender, furnished with 4 blunt teeth next the base on the internal margin (2).

Maxillæ slender, bent, acute, sparingly ciliated internally with rigid bristles. *Palpi*, internal biarticulate, basal joint the longest; external 4-jointed, basal joint small, 2nd large, 3rd rather slender short, 4th the longest, more robust (3).

Mentum very broad but short, emarginate, producing a bifid tooth in the centre. *Palpi* rather long, attached to scapes at the base, 3-jointed, basal joint slender curved, 2nd and 3rd of nearly equal length, subclavate. *Lip* rather small, trilobed (4).

Head subtrigonal. Eyes large very prominent. Thorax more or less quadrate. Scutellum minute triangular. Coleoptra oval. Wings ample. Legs; anterior the shortest. Tibiæ spurred, anterior having a spine on the side near the apex, where it is sloped off, or slightly emarginate. Tarsi 5-jointed, anterior slightly dilated in the males, basal and terminal joints the longest (5, a fore leg).

Obs. the dissections were made from *E. uliginosus*.

ULIGINOSUS *Fab. Ent. Syst. v. 1. pars 1. p. 178. n. 1.—Dej. Spec. Col. 2. 269. 1.*

Dullæneous, minutely punctured; mouth with a greenish tinge, head somewhat rosy, the latter with an impression between the eyes, which, as well as the antennæ are black. Thorax broader than the head, suborbicular, with several small foveæ and a short channel upon the back furcate anteriorly. Elytra with 4 cate-nulated striæ formed of violaceous spots connected by black smooth and shining convex spaces. Legs chalybeous; thighs and underside of the insect æneous green.

In the Cabinets of Mr. Ingpen and the Author.

THE Elaphri so far resemble the Cicindelæ in habit, that Linnaeus included them in the latter genus; and although the credit is due to Fabricius for having first characterized them, it is evident he considered them closely allied, from his having placed Elaphrus next to Cicindela in his different works. Latreille in this respect followed Fabricius, making Elaphrus lead off to Bembidium; but in his latter works he has removed them nearly to the end of the Carabidæ. Dejean has departed altogether from the other arrangements, and has placed Elaphrus in the midst of the Carabidæ and removed the Bembidia to the end of this family. We cannot but regret this change, because it also removes to an unnatural situation the genus Omophron, which seems ordained by Nature so perfectly to connect the Carabidæ with the Dyticidæ.

Our genus contains the three following British species.

1. *E. uliginosus* Fab.

There can be no doubt but this is the true *E. uliginosus* of Fabricius, since he describes the legs black, which although not strictly correct, because they are tinged with green and blue, renders it impossible to apply it to *E. cupreus*, in which the tibiæ are ferruginous, the extremities only being black or green: from the latter it may also be distinguished by a larger and more orbicular thorax, the channel in the centre being much more shallow; and in our specimens the violet-coloured spots on the elytra were considerably smaller. This species is the more common one on the continent, but is by far the rarest in this country, having been detected I believe only in the neighbourhood of the metropolis. The specimen figured was taken by Mr. Ingpen the 18th of September 1824, out of the rotten stump of an old willow-tree, in a marshy place near Chelsea.

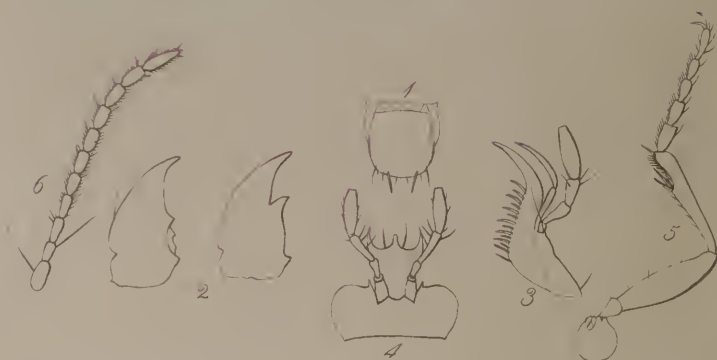
2. *E. cupreus* Meg.—*Dej. Spec. Col.* 2. 271. 2.—*riparius* Oliv.?
v. 2. t. 1. f. 1.

This is our most common species, being found on the borders of lakes and ponds throughout the kingdom, from April to August; these insects run upon the mud, when the sun shines, with great rapidity, and are difficult to capture.

3. *E. riparius* Linn.—*Don.* 9. 301.—*Panz.* 20. 1.

This pretty species is to be seen from March to July running by the edges of ponds, upon moist banks, and wet open spaces in woods.

The plant is *Cardamine pratensis* (Common Ladies' Smock).



Revised by C. F. W. Smith, London, Apr. 1, 1924

NOTIOPHILUS RUFIPES.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Cicindela aquatica Linn.

NOTIOPHILUS Dum., Leach., Sam., Dej.—Elaphrus Fab., Lat.

Antennæ inserted before the eyes at the base of the mandibles, rather short and thickened towards the apex; 11-jointed, basal joint robust oval, 2nd the shortest, slender, 3rd rather longer than the 4th, the remainder pubescent, slightly increasing in length to the terminal joint which is the longest and conical (6).

Labrum exserted, suborbicular, ciliated with a few short bristles, the margin dilated and transparent at the base (1).

Mandibles subtrigonal, bent and acute, one with 4 short teeth below the middle, the other with a very large one in the centre and a small one at the base (2).

Maxillæ terminated by a long bent tooth, the inside serrated with moveable spines. *Palpi*, *internal* as long as the *maxillæ*, slender, formed of 2 joints of equal length, the 1st slightly clavate, the 2nd claw-shaped; *external* scarcely longer than the *maxillæ*, robust 4-jointed, basal joint minute, 2nd clavate, 3rd pilose, 4th the longest, inflated, fusiform truncate (3).

Mentum large transverse, the side lobes acuminate, the central lobe depressed and emarginate. *Palpi* arising from 2 distinct scapes, triarticulate, basal joint small, 2nd and 3rd of equal length, the former slender and pilose, the latter fusiform truncate. *Lip* large, dilated anteriorly, and truncated; a lobe and 2 bristles in the centre; each side produced into an incurved and transparent spine (4).

Head as broad or broader than the thorax depressed. Eyes very large.

Thorax obcordate truncate, anterior margin slightly angulated in the centre, posterior emarginate. Scutellum subtrigonal. Elytra smooth down the back, slightly emarginate near the apex. Coxæ very large.

Tibiæ, anterior distinctly notched beneath and spurred. Tarsi alike in both sexes, 5-jointed, anterior slightly dilated and very pubescent beneath. Claws bent and acute (5).

RUFIPES Heysham MSS.

Cupreous shining. Head as broad as the elytra, punctured at the base; nasus and crown with deep longitudinal furrows. Thorax transverse, scarcely so broad as the head before, and narrower than the elytra behind, coarsely punctured, smooth only on the disc, in the centre of which is a deep impression, as well as one at each of the posterior angles. Elytra very smooth, slightly ochreous at the tips, with a few punctures round the Scutellum, and a faint row down each side the suture, 6 deeply punctured striæ close together towards the external margin, which is smooth; between the 2nd and 3rd striæ before the middle is a fovea and another near the apex. Antennæ and legs pale ferruginous, the former fuscous towards their apex.

In the Cabinet of Mr. Heysham.

THESE pretty little insects which we see sparkling in the sunshine in our fields and gardens, from the beginning of June to the end of August, have so much the contour and habit of *Cicindela*, that Linnæus included his species in that genus. They are well characterized by their broad heads and very large eyes, and by their highly polished elytra, which are perfectly smooth down the back, having a space next the margin beautifully punctured.

The Comte Dejean was mistaken in supposing that the anterior tibiæ of the *Notiophili* were not emarginated, for they are deeply notched; and he is no less in error in stating that the mandibles are not dentated, since they have several teeth; and it is amusing enough to see compilers echoing his blunders.

When we compare the essential characters of our genus with those of *Elaphrus*, it will be seen how very dissimilar they are; the form of the labrum, the maxillæ, the internal maxillary, and the terminal joints of the other palpi are widely different.

Two species having been added to our Fauna last year by T. C. Heysham, Esq. who took them in the neighbourhood of Carlisle, and transmitted them to me for the illustration of the genus, I shall give specific descriptions of the whole.

1. *N. aquaticus* Linn.—Don. 10. pl. 351. 2.—Panz. 20. 3.—*semipunctatus* Fab.—Marsh.

Entirely æneous or bluish black, the tibiæ and base of antennæ rarely ferruginous.

2. *N. rufipes* Heys.—Curtis Brit. Ent. pl. 254.

Cupreous; head very broad; scutellum small; apex of elytra alone obscurely ochreous: legs and base of antennæ ferruginous.

3. *N. biguttatus* Fab.—*semipunctatus* Duft., Sturm. tab. 183. A.

Cupreous, base of antennæ and tibiæ ochreous, apex of elytra straw-colour.

4. *N. 4-punctatus* Dej., Spec., Col. 2. 280. 3.

Scutellum semiovalate, each elytron with two punctures on the back, and one at the apex. Head narrow, thorax more quadrate and less rugose than in *N. biguttatus*; base of antennæ and of four posterior legs obscurely ochreous. Elytra bronzed black, the apex straw-colour, faintly punctate-striate at the margins.

The plant is *Cerastium arvense* (Corn Mouse-ear.)

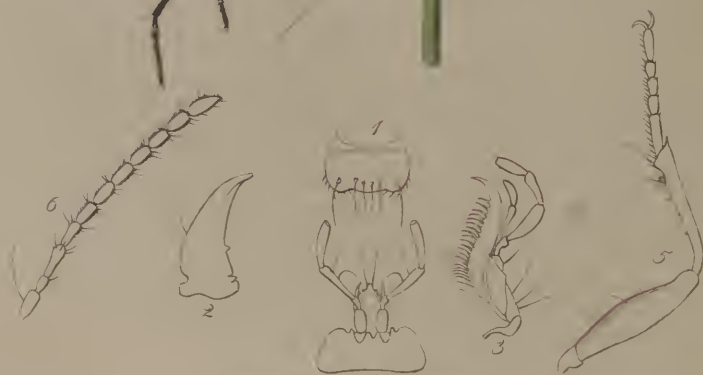


Fig. 1. *Curculio* *sp.*

BLETHISA MULTIPUNCTATA.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus, *Carabus multipunctatus* Linn.

BLETHISA Bon., Sam., Sturm., Dej.—*Nebria* Lat., Gyll.—*Carabus* Linn., Fab., Marsh.

Antennæ inserted close to the base of the mandibles, rather short, slightly thickened towards the extremity, very pubescent, excepting the 3 first joints and the base of the 4th; 1st joint robust oblong, 2nd small obovate, 3rd the longest, excepting the 11th, clavate, remainder oblong, terminal joint conical (6).

Labrum transverse oblong, anterior angles rounded and ciliated with bristles, the centre convex, the upper side towards the anterior margin producing 6 long bristles (1).

Mandibles rather slender, bent at the apex, crenated internally at the base, one having a small tooth towards the centre (2).

Maxillæ long and slender, bent and acute at the apex, ciliated internally with strong bristles. *Palpi*; internal biarticulate, basal joint much the longest; external long, 4-jointed, basal joint short, 2nd long robust, 3rd and 4th shorter, of equal length and truncated (3).

Mentum transverse, angles rounded, the lateral lobes acuminate internally, emarginate, with a strong notched tooth in the centre. *Labium* oblong, produced in the centre and furnished with 2 bristles, the sides forming 2 laciniae. *Palpi* attached to 2 moveable scapes, triarticulate, basal joint short and curved, 2nd long, clavate, 3rd scarcely so long and truncated (4).

Head subovate. Eyes rather large and prominent. Thorax broader than the head, subquadrate, the sides rounded and margined, posterior angles quadrate. Scutellum triangular. Elytra broader than the thorax large and oblong-oval. Wings ample. Tibiæ spurred, anterior with a short but deep notch on the underside near the apex, armed with long spines. Tarsi; anterior with the 4 basal joints slightly dilated in the males (5).

MULTIPUNCTATA Linn. F. S. p. 223. n. 805.—*Curtis's Guide*, Gen. 85.

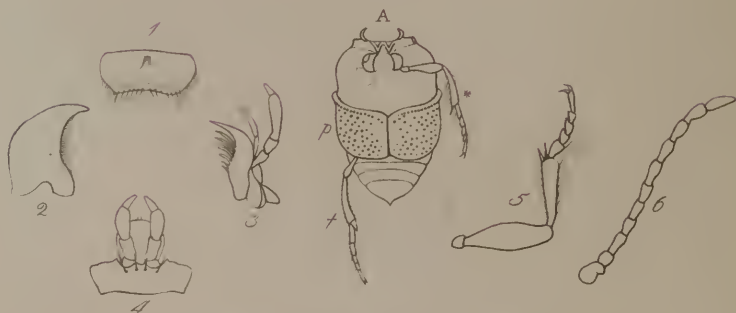
Dull æneous, shining. *Antennæ* (excepting the 3 basal joints which are green), trophi, tibiæ, and tarsi black. Head punctured behind, with a transverse channel extending to the back part of the eyes, on the inner margin of which are 2 convex elevations. Thorax punctured, excepting the whole of the disc, a deep channel down the centre and a large excavation at each of the posterior angles; margin of the elytra green and punctured, rugose towards the apex, each having 6 striæ, formed of brilliant green punctures, the sutural one broken near its origin; an impression on each side the scutellum, 4 or 5 foveæ between the 2nd and 3rd striæ, uniting them, and forming a chain; one near the base between the 3rd and 4th, 2 between the 4th and 5th, and others very obscure nearer the margin.

In the Author's and other Cabinets.

IN treating of *Pelophila*, the affinities of *Blethisa* have been alluded to, and it is evident on comparison that it is nearly allied to *Elaphrus*. From its external appearance, which so much resembles *Pelophila* that they might easily be confounded, one would expect to find the relationship carried further; but the difference of form in the labrum and labium, as well as the relative proportions of the joints of the external maxillary palpi, not only at once distinguish them as genera, but indicate that they are not immediately related to each other.

Blethisa multipunctata is a handsome insect, and is generally distributed over England; it may be found for a considerable portion of, if not throughout the year, for I have met with it from April to the middle of November. It frequents the borders of ponds, lakes and ditches, and runs out of crevices in the mud, especially in fine weather when dried by the sun, when the ground is disturbed by being walked over; I have also frequently seen them under wet bundles of reeds, and beneath stones in marshes. Specimens have been observed in Copenhagen and Battersea Fields, at Covehithe Suffolk, Horning and Hethersett Norfolk, the borders of Whittlesea Meer Huntingdonshire, and in the moist parts of Crwmllyn Burrows, near Swansea. The beautiful variety figured was taken by Mr. Heysham near Carlisle, and Mr. Haliday has once met with it in Ireland.

The plant is *Fritillaria Meleagris* (Common Fritillary, Chequered Daffodil or Snake's-head), gathered in a meadow near Mortlake, and communicated by Mr. J. J. Bennett; Mr. Dale has also found the white variety near Henley-upon-Thames.



HALIPLUS FERRUGINEUS.

ORDER Coleoptera.

FAM. Dyticidæ.

*Type of the Genus, Dytiscus ferrugineus, Payk.*HALIPLUS Lat., Gyll., Curt.—Hoplitus, Clv.—Cnemidotus Ill.—
Dytiscus Linn., Fab., Mars.

Antennæ inserted close to the inner margin of the eyes, near the base of the clypeus, not longer than the thorax, slender, filiform, compressed, naked and 11-jointed, basal joint the stoutest, short; 2nd the shortest, subglobose; 3rd much longer, slenderer and a little clavate; 4th shorter than the 5th, which is scarcely so long as the 3rd, the following slightly increasing in length, apical joint the longest, conical at the tip (6).

Labrum broad, short, subelliptic, narrowed anteriorly, concave before and ciliated with bristles (1).

Mandibles small, hooked and acute at the apex, ciliated internally (2), one with a small tooth at the centre.

Maxillæ short, the apex forming a strong claw, with a few curved spines below. *Palpi*, *internal* slender, biarticulate, basal joint a little clavate, 2nd attenuated to the apex: *external* rather short, naked and 4-jointed, 2 basal joints short, 3rd long, a little dilated in the middle, 4th very small, slender and conical (3).

Mentum transverse, anterior margin bisinuated, the centre forming a slight emarginate lobe. *Lip* rather large and ovate. *Palpi* attached to short scapes, rather long and triarticulate, 1st and 2nd joints stout and elongated, 3rd short slender conical (4).

Head *rather small and subovate*: eyes *lateral, rather prominent and oval*. Thorax *trigonal-truncate, anterior margin concave, base lobed in the centre*: scutel *none*. Elytra *ovate-conic, convex*: wings *ample*. Metasternum *dilated and forming a large plate (p), covering the base of the abdomen and concealing a portion of the hinder thighs*. Legs *formed for walking, anterior the shortest* (5), *hinder the longest*: thighs *stout, hinder longish, slender and clavate* (A †): tibiae, *anterior short, intermediate often ciliated with long hairs (*)*; hinder *the longest and slender, all spurred*: tarsi, *anterior dilated a little in the males, 5-jointed, basal joint obovate truncate, 2nd and 3rd shorter, 4th the smallest, ovate, 5th the longest, slender and clavate, hinder longer and attenuated, basal joint long, the following decreasing in length, 5th scarcely so long as the 1st*: claws *slender and acute*.

FERRUGINEUS Payk.—Curt. Guide, Gen. 87, 3.

Shining ochreous: head orange, sparingly punctured: thorax more yellow, punctured except on the disc, the base depressed, with 2 lines of punctures, the first very strong: elytra with 9 or 10 striae of strong black punctures, largest towards the suture: the interstices with remote minute punctures; each elytron with a piceous spot at the base, an oblique line of 3 long spots before and a more transverse one across the middle, forming a \angle , and a group of 3 long spots beyond them; the suture and a spot near the apex piceous: metasternum punctured.

THESE curious little beetles are very active in the water; they swim with ease and walk tolerably well. The subulated apical joint of the palpi and the remarkable shield-formed plate, distinguish this group from all the other Dyticidæ, but Latreille was wrong in supposing the antennæ were composed only of ten joints. The following are British species.

* *Thorax subquadrata*.

1. *elevatus* Panz. 14, 9.

May, running brooks, Letheringsett, Norf.; and Bexley, Kent.

** *Thorax broadest at the base*.

2. *mucronatus* Lea.—*Ste. pl.* 11, *f.* 1.—*ophthalmicus* Kirb. Suffolk, Bottisham and near Swansea.

3. *parallelus* Bab., *Trans. Ent. Soc.* 1. p. 178. *pl.* 15. *f.* 5. Taken at Cambridge.

4. *ferrugineus* Payk. *Curt. B. E. pl.* 730.—*fulvus* Fab.—*Ent. Trans.* 1. *pl.* 15. *f.* 4.—*interpunctatus* Mars.

I quite agree with Mr. Babington, that this is not the *D. ferrugineus* of Linn.; his words "*ferrugineus totus*" better agree with *Hyphydrus ferrugineus*, as does also his observation which follows, "*Magnitudine Cimicis, totus rufus s. ferrugineus.*" Paykull, however, gave the name of *ferrugineus* to this *Halplus* before Fabricius and Marsham noticed it, I have consequently retained his name.

April, ditches and ponds, Wandsworth Common; August, Norfolk, Cambridge, and Loch Fad.

5. *rubicundus* Spe.—*Bab. E. T.* 15. *f.* 6.—*subnubilus* Bab. *E. T.* 1. *pl.* 15. *f.* 3. *var.* Common everywhere.

6. *ruficollis* DeGeer.—*minutus* Don. 2. *pl.* 68. 1 and 2.

April, ponds and ditches near London, Norfolk, and Cambridge.

7. *affinis* Step.—The specimens I have received from correspondents thus named are merely small vars. of *ruficollis*.

8. *obliquus* Ill.—*Pz.* 14. 6.—*amœnus* Oliv. 3. *t.* 5. *f.* 50.

Near London, Norfolk and Cambridge.

9. *confinis* Kirb. *Step.*

April, Wandsworth Common; Aug., Norfolk and Suffolk.

10. *lineatocollis* Mars.—*Ahr.* 7. 3.—*muticus* Gyll.—*bistriolatus* Duft.

April, Norfolk, Suffolk, Cambridge; Wandsworth Common; Aug., Whittlesea Mere; Sept., ponds, Paddington.

11. *marginepunctatus* Panz. 14. 10.

Near London, and ponds of Botanic Garden, Cambridge.

12. *melanocephalus* Steph. 13. *brevis* Kirb.

14. *impressus* Fab.—*Panz.* 14. 7.—*flavicollis* Mars.—*cæsus* Duft.

April, ponds and ditches, Norfolk and Battersea fields; July, Wandsworth Common.

The plant is *Ceratophyllum demersum*, Common Hornwort.



Bostrychophaga 1105

HYGROTUS DECORATUS.

ORDER Coleoptera.

FAM. Dyticidæ.

*Type of the Genus, Dytiscus inæqualis, Fab.*HYGROTUS *Step., Curt.*—Hyphyrus *Müll., Gyl.*—Dytiscus *Fab., Payk., Panz.*

Antennæ inserted in a cavity close to the eyes, as long as the head and thorax, filiform, 11-jointed, 2 first joints oblong, the basal one curved at its insertion, 3rd and 4th short, 5th nearly as long as the 2nd and stouter, the remainder of the same size and shape, the last being as long as the 2nd and ovate-conic (6). *Labrum* transverse-elliptic, ciliated and slightly curved in the middle, but not notched (1).

Mandibles convex, truncated obliquely, the angles forming obtuse teeth, with one on the inside, the teeth much more developed in one (2 *a*), than in the other (6).

Maxillæ small, forming a horny claw, with a bundle of strong bristles on the inside towards the base, and a few near the apex: *Palpi*, internal long slender and biarticulate, the basal joint short, external clavate, 4-jointed, 2 first joints small, 3rd a little larger, 4th very large subfusiform (3).

Mentum transverse, bilobed, swelling a little at the centre.

Palpi short, triarticulate, 2 first joints subquadrate, 3rd larger subreniform (4).

Head large, broad at the base, convex before: eyes lateral and ovate.

Thorax considerably broader than the head at the base, very short, forming a narrow band, concave before: scutellum invisible. Abdomen convex beneath. Elytra ovate, very convex, truncated at the base, broadest before the middle, and subconical at the apex. Wings ample.

Legs, 4 anterior short, posterior formed for swimming: Tibiæ, 4 anterior furnished with a series of bristles and ciliated with long hairs outside towards the apex: tarsi 4 anterior 4-jointed, cushioned beneath and a little dilated in the males, 1st and 2nd joints somewhat obtrigonal, 3rd rather elongate and bilobed at the apex, 4th the smallest: claws 2 (5): posterior tibiæ ciliated on the inside, the sides and apex spined: tarsi elongated, tapering, ciliated internally, 5-jointed, terminal joint slender: claws 2 (†), very indistinct in some.

DECORATUS *Gyll., Ins. Suec. 2, Add. p. xvi.*—*Curt. Guide, Gen. 90. 3.*

Ovate, shining, piceous; antennæ ferruginous at the base; head of the same colour, and sparingly punctured, thorax inclining to piceous, especially towards the base, where there is a broad line of punctures, as well as along the anterior margin: elytra strongly punctured with a sublunulate ferruginous-ochre patch on each shoulder and another beyond the middle, with the external margin of the same colour and uniting them: legs ferruginous.

In the Author's and other Cabinets.

It seems very doubtful whether it were necessary to form a genus for this group, it is so closely allied to *Hyphydrus*; and although in *H. fluviatilis* and *confluens* 2 claws are very distinct in the posterior tarsi, I am not convinced of there being more than one with some long bristles, in the more convex species.

The following are British insects.

1. *H. fluviatilis* Lea.—*Ste. pl.* 11. *f.* 2.

April, in the river Cawdor, Carlisle, Dr. Leach; Meldon Park, Mr. Wailes; Hebden Bridge; Netley, Salop; Mendip Hills, Mr. Streatfield; and the Tavy, Devon.

2. *assimilis* Payk.—*Gyll.* 1. 522. 6.

Aldborough, Yorkshire; Netley, and river Plym, Devon.

4. *confluens* Fab.—*Oliv. n.* 40. *pl.* 5. *f.* 44.—*Pz.* 14. 5.

Newcastle, Mr. Wailes; Whittlesea Mere; in lily-pots, Yarmouth, Mr. Paget; in stagnant water July, Wandsworth Common and Copenhagen Fields; end of April, middle of October, gravel-pits, Glanville's Wootton, Mr. Dale; Swansea, Mr. Dillwyn; Kimpton and Marton, Rev. G. T. Rudd.

5. *collaris* Pz. 26. 4.—*recurvus* Mars.—*affinis* *Ste. var.*

Pools, ponds and ditches, Wandsworth Common, Copenhagen Fields, Swansea, Parley Heath, end of May, and Devon.

6. *reticulatus* Fab.—Stephens gives this and also the following as the *trifidus* of Marsham.

July near London; Swansea; end of October Parley Heath, Puddimore, and Devon.

7. *inæqualis* Fab.—*Oliv. pl.* 3. *f.* 29. ?—*trifidus* Mars. according to Gyllenhal.

Newcastle; end of June, turf-pits, Bottisham and Swaffham fens; ditches Norfolk; Wiltshire; September and October Portland and Holwell, Somerset; Swansea and Ireland.

3. *decoratus* Gyl.—*cuspidatus* Ahr.?—*Curt. B. E. pl.* 531.

For specimens I am indebted to G. A. Wright, Esq., who took them the end of last July on Askam bog, near Tadcaster, "in shallow puddles on the overflowed part of the bog, where the grass was very thick. In these places water insects of every description abounded, and the *H. decoratus* seemed exclusively confined to them."

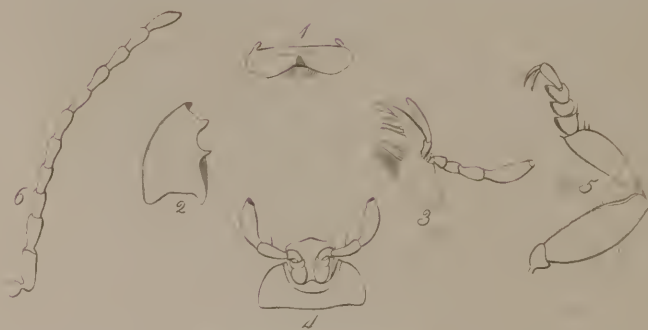
8. *scitulus* Spen.—*Ste. pl.* 11. *f.* 3.—*lepidus* Oliv. *pl.* 5. *f.* 51. *var.?*

Carlisle, Yorkshire, Cambridge, Wandsworth Common, Copenhagen Fields; 12th of July, Parley Heath and New Forest; in a shady canal, Swansea, Devon, and Ireland.

9. *pictus* Fab.—*flexuosus* Mars.—*arcuatus* Pz. 26. 1.

Newcastle and Yorkshire; May, ditches and streams Norfolk, Wandsworth Common, and Hampstead; August to the end of October Copenhagen Fields, ponds, Paddington and South-end; Parley Heath, and stagnant waters Swansea.

The Plant is *Sium nodiflorum* (Procumbent Water Parsnep).



HYDROPORUS DAVISII.

ORDER Coleoptera.

FAM. Dyticidæ *Leach.**Type of the Genus, Dytiscus depressus Fab.*HYDROPORUS *Clair., Sam., Ste., Curtis's Guide, Gen. 91.—Hyphydrus Ill., Gyll.—Dytiscus Linn., Fab., &c.*

Antennæ inserted before the eyes, longer than the thorax, filiform, 11-jointed, basal joint the longest, 2nd longer than the 3rd; the remainder subclavate, nearly of equal length, the terminal joint a little longer and truncated obliquely (6).

Labrum very broad and short, somewhat transverse-elliptic, the anterior margin deeply emarginate and ciliated at the centre (1). *Mandibles* semicylindric at the apex, one truncated obliquely at the apex, the other more bifid, both having a minute tooth on the inside near the middle (2).

Maxillæ bent and very acute, ciliated internally with long spiny bristles. *Palpi*, *internal* long and slender, biarticulate, the basal joint very short; *external* long and robust, 4-jointed, 1st and 2nd joints short, 3rd longer, 4th the longest and stoutest, ventricose, terminated by a vesicle (3).

Mentum semicircular, deeply concave before with the centre slightly produced.

Labium subquadrate, anterior margin slightly undulated. *Palpi* attached to large moveable scapes, triarticulate, basal joint short curved, 2nd longer slightly thickening to the apex, 3rd large ventricose truncated obliquely (4).

Head broad, short, semiorbicular. Eyes small and remote. Thorax transverse, broadest at the base, concave before, convex behind, the sides generally rounded. Scutellum none. Elytra broader than the thorax somewhat oval, truncated at the base, more or less pointed at the apex. Wings ample. Legs short, excepting the hinder pair which are formed for swimming. Thighs rather stout. Tibiæ simple. Tarsi; 4 anterior 4-jointed (the penultimate joint being evanescent), dilated in the males and cushioned beneath (5); hinder pair slender, 5-jointed. Claws simple equal.

DAVISII *Curtis.*—*borealis* ? *Gyll. 4. p. 386. 8–9.*

Ochre colour, shagreened and sparingly punctured: antennæ with the tips of the terminal joints and of the palpi black: head ferruginous at the base, with two black curved lines reaching to the eyes: thorax with a channel on each side and a slight point in the centre, with 2 black triangular spots below the middle, the anterior margin sometimes black: elytra rather strongly punctured towards the apex which is acuminate, straw coloured at the base with 6 rather broad black lines on each, not reaching the base and several of them united towards the apex, the 3 first suffused and forming a blot towards the middle; on the side are 2 abbreviated and interrupted black lines forming 1 or 2 black spots: tips of the tarsal joints brown or black especially in the hinder pair: underside black.

In the Cabinets of Mr. Davis and the Author.

I SHALL endeavour to correct the list given in my "Guide," and describe two new species.

1. 12-pustulatus *F. Don.* v. 14. pl. 496.—12-punctatus *Steph.*
2. depressus *F.*—elegans *Mars. Panz.* 24. 5.
3. frater *Sp.*—depressus *Duf.*—halensis *F.*—areolatus *Dej.*
4. griseato-striatus *DeGeer. Gyll.* 1. 523. 7.
5. alpinus? *Gyll.* 1. 524. & 4. 386.—rivalis *Leach's MSS.*; but

I think Gyllenhal's *H. rivalis* is an *Hygrotus*.

6. Davisii *Curt. Brit. Ent. pl.* 343.

This handsome insect comes nearest to *H. borealis* *Gyl.*; but it appears to be twice as large. It was taken in a mill-stream at Hebden Bridge in the spring, and presented to me by A. H. Davis, Esq. F.L.S., to whom I have the pleasure of dedicating it.

7. nigrolineatus *Scho.* 2. 33. pl. 4. f. 2. *Gyll.* 3. 688.
8. 9-lineatus *Rudd's MSS. Ste.*
9. lineatus *Mars. mas.*—consobrinus *Kunz. fem.*
10. picipes *Kunz.*—punctatus *Marsh.* 426. 36.
11. alternans *Kunz.*—lineellus *Gyl.* 1. 529.
12. latus *Curtis's Guide, No.* 11.

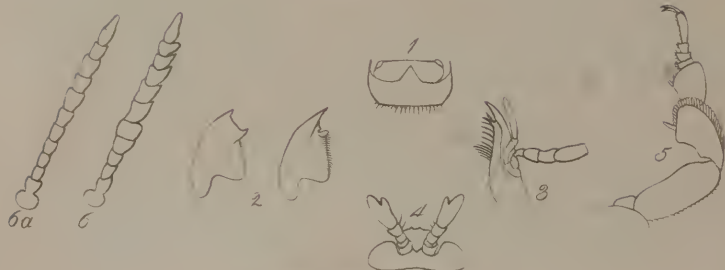
The length of No. 6. ovate, triangular at the apex, rather convex, minutely granulated and clothed with excessively short yellowish pubescence; irregularly and sparingly but coarsely punctured; dull piceous, head castaneous, obscurely piceous across the middle; eyes black: thorax short transverse with a fovea in the centre, the sides slightly margined at the posterior angles which are rounded and reflexed; posterior margin angulated in the centre: elytra with a large humeral castaneous spot: trophi antennæ and legs castaneous. I possessed a single specimen for many years; Mr. Dale took two in his pond at Glanville's Wootton; Rev. G. T. Rudd, Yorkshire; and Mr. Gibson, Hebden Bridge.

13. opatrinus *Dej.?* *Ste.* 14. proximus *Wilk. var.?*
15. 6-pustulatus *F.*—litratus *Panz.* 14. 4.
16. Cambriensis *Davis's MSS.*

Rather longer and narrower than No. 15, convex, dull black, rather thickly and minutely punctured and clothed with obscure depressed hairs: 2 basal joints of antennæ ochreous, several of the following ferruginous at the base: head ferruginous black at the base with 2 large oblique black marks before the eyes almost meeting in the middle: thorax short and broad, the sides ochreous vanishing towards the posterior angles: elytra with an ochreous lateral line towards the apex hooked internally at both ends: legs ferruginous,

- | | |
|--|--|
| 17. umbrosus <i>Gyl.</i> | 27. ovalis <i>Mar.</i> |
| 18. rufifrons <i>Duf.</i> | 28. Nigrita <i>Fab.</i> |
| 19. marginatus <i>Kunz.</i> —Lap-
ponum <i>Gyl.</i> | 29. trivialis <i>Spence.</i> |
| 20. deplanatus <i>Gyl.</i> | 30. planus <i>Mar.</i> minutus <i>Ste.?</i> |
| 21. ferrugineus <i>Rudd. Ste.</i> | 31. melanocephalus <i>Mar.</i> |
| 22. Scalesianus <i>Ste.</i> | 32. erythrocephalus <i>Linn.</i> |
| 23. unistriatus <i>Ill.</i> —parvulus
<i>Panz.</i> 99. 2. | 33. flavipes <i>F.</i> humeralis <i>Mar.</i> |
| 24. geminus <i>F.</i> trifidus <i>Pz.</i> 26. 2. | 34. holosericeus <i>Mar.</i> — ater
<i>Fors.?</i> |
| 25. minimus <i>Scop.</i> | 35. pubescens <i>Gyl.</i> |
| 26. granularis <i>L.</i> | 36. fuscatus <i>K.</i> —planus <i>Gyl.?</i> |
| | 37. piceus <i>K.</i> —planus <i>Gyl. β?</i> |

The plant is *Utricularia minor* (Less-hooded Milfoil), discovered near Heron Court by the Hon. C. A. Harris.



Salvia Carr. *Cur.* 1 10

NOTERUS SPARSUS.

ORDER Coleoptera. FAM. Dyticidæ *Leach.* Hydrocanthari *Lat.*

Type of the Genus Dytiscus crassicornis Fab.

NOTERUS *Clairv., Lat., Leach, Sam.*—Dytiscus *DeGeer, Fab., Oliv., Marsh., Herb.*

Antennæ inserted close to the anterior margin of the eyes, short, varying in form, 3 first joints small, 5th dilated in the males, the remainder more or less produced on the internal side, the terminal joint slender, elongate-ovate (6) : those of the female are less robust, and the 7th joint is the largest (6 a).

Labrum transverse, the sides rounded, anterior margin straight and ciliated (1).

Mandibles broad and truncated obliquely at the apex, the angles acute, ciliated internally (2, one being turned to show the inside).

Maxillæ very slender, elongate-trigonal, apex slightly curved and acute, the internal edge notched below the apex and armed with a few rigid bristles. *Palpi*, internal slender biarticulate, terminal joint the longest : external 4-jointed robust, 1st joint small, 2nd and 3rd somewhat quadrate cup-shaped, 4th the longest, ovate-truncate (3).

Mentum small transverse short emarginate, side lobes rounded, the centre slightly produced and notched. *Labium* short broad and emarginate. *Palpi* robust, arising from scapes, triarticulate, basal joint short, 2nd cup-shaped, 3rd hand-shaped, being ovate and producing a blunt tooth on the internal side, which gives it a furcate appearance.

Head broad rounded. Eyes small remote. Thorax very broad and short, slightly narrowed anteriorly, the basal margin sinuated. Scutellum none. Elytra convex ovate. Wings ample. Legs, anterior very robust in the males. Tibiæ trapezate, margined with a regular and compact line of spines on the external margin, producing a long one near the apex. Tarsi 5-jointed, the basal one very large subtrapezate, 3 following short, decreasing in size, 5th long subclavate. Claws long and slender (5, fore leg of male). Tibiæ to posterior legs spurred. Tarsi attenuated, the hinder pair the longest and terminated by very minute Claws.

Obs. The dissections were made from *N. sparsus*.

SPARSUS *Marsh. Ent. Brit.* 430. 49.

Ferruginous-brown, smooth, shining. *Antennæ* with the 5th joint the largest in the male, the 7th in the female. Thorax darkest in the disk, with an impressed line next the anterior and lateral margins. Elytra, each with 3 irregular rows of rather remote punctures, scattered and stronger towards the apex. Legs castaneous, anterior thighs and base of tibiæ black in the male. Underside piceous, inclining to black in the male, to castaneous in the female.

In the Author's and other Cabinets.

THE Dyticidæ are characterized by filiform antennæ, considerably resembling those of the Carabidæ; the genus *Agabus* of Leach however, and *Noterus*, vary from the typical form in having those organs incrassated; the former at the extremity, the latter towards the middle: this alone will distinguish the males from all others of the same family; and *Agabus* may be further separated from *Noterus* by its developed scutellum: but the singularly formed terminal joint of the labial palpi (like a whole-handed glove) in our genus, will at once distinguish both sexes from all other genera.

There are but three species of this genus known, two of which are inhabitants of Britain.

1. *crassicornis* *Fab.*—*Oliv.* 3. *tab.* 4. *f.* 34.—*Marsh., Gyll.*—*clavicornis* *DeGeer.*—*capricornis* *Herbst.*—*Geerii* *Leach, Sam.*

Both sexes of *N. crassicornis* are distinguished from *N. sparsus* by their smaller size, and the ochraceous colour of the head and thorax. The 5th joint of the antennæ in the males is much more incrassated, and the elytra are very faintly punctured. The head beneath and the antepectus at the base of the coxæ are black, with a broad testaceous stripe down the centre; and the four anterior thighs in the same sex are piceous towards their apex.

I have taken this local insect in ponds and ditches in Norfolk in April; but it may be found during the whole year. It has been observed in Battersea Fields, on Wandsworth Common, Epping Forest, at Whittlesea Mere, and in Cambridgeshire and Suffolk.

2. *sparsus* *Marsh.*—*Curt. Brit. Ent. pl.* 236.

This is a more abundant species, and may be taken all the year in stagnant waters in the neighbourhood of London, in Norfolk, Suffolk, &c. It is said also to frequent marshes near the sea.

The plant represented in the plate is *Veronica Beccabunga* (Brooklime).



Drawn by J. Currier London Apr. 1. 1893

COLYMBETES CONSOBRINUS.

ORDER Coleoptera. FAM. Dyticidæ *Leach*. Hydrocanthari *Lat.*

Type of the Genus Dytiscus striatus Linn.

COLYMBETES *Clairv., Lat., Leach, Sam.*—*Dytiscus Linn., Fab., Oliv., Gyll., Panz., Marsh.*

Antennæ inserted close to the eyes at the base of the mandibles, subsetaceous, naked, 11-jointed, basal joint not longer nor more robust than the 4th, 2d joint small and short, 3d and following nearly of equal length, the last truncated obliquely at the apex (6). *Labrum* very broad and short, sides rounded, the centre emarginated and ciliated (1).

Mandibles short, obtuse, subtrigonal, dilated obliquely at the apex which is truncated and emarginated, below which on the inside are 2 small teeth (2).

Maxillæ bent, acute, ciliated internally with rigid bristles. *Palpi*, internal biarticulate, slender, basal joint rather shorter than the terminal one which is slightly bent; *external* long, robust, 4-jointed, basal joint small, 2d and 3d of equal length, 4th, longer, truncated (3).

Mentum transverse, deeply emarginate, the centre producing a broad truncated lobe. *Palpi* nearly as long as the maxillary, robust, arising from large scapes, 3-jointed, basal joint short, the 2d and 3d twice as long, of equal length, the latter slightly curved and truncated obliquely. *Labium* large, quadrate, ciliated (4).

Head broad rounded. Thorax broad and short, narrowed before, broad at the base. Scutellum distinct. Elytra large and ovate. Wings ample. Tibiæ spurred, anterior the shortest, posterior the longest. Tarsi 5-jointed, 4 anterior short, the 3 first joints dilated in the males (5, fore leg of male); hinder pair elongated and attenuated. Claws curved, excepting the posterior pair which are straight, and of unequal length.

CONSOBRINUS *nobis.*—*elongatus Leach's MSS.*

Long, narrow, oval, shining, delicately and thickly punctured, dull ferruginous. Head black, with a ferruginous spot on the crown. Thorax blackish, sides and anterior margin lurid, an abbreviated channel down the centre. Elytra with 3 faintly punctured striæ on each, united towards the apex, the spaces between them dotted with black; the scutellum suture and 4 streaks at the base of the same colour. Legs lurid, inclining to fuscous.

Obs. the above description having been made 12 years since, it is not so complete as we could wish; but it is hoped that the figure will sufficiently characterize the insect.

In the Cabinet of Mr. Vigors.

If the same principles that have influenced those naturalists who have studied the Carabidæ, were to be extended to the Dyticidæ, the genus *Colymbetes* might easily be divided into several genera; but as we hope to place genera upon a more solid basis, we state most unequivocally, that we shall not wittingly adopt any that are not founded on essential characters. All such therefore as have no better claim to distinction than mere outline, or such-like secondary characters, will be rejected, excepting in the order of Lepidoptera.

The insects of this genus inhabit Lakes, Ponds, Brooks and Rivers, and are found the whole year, but most abundantly from the end of April to July. The following arrangement of our British species will, we think, be found agreeable to their affinities; as we do not possess those with a *, their situations may possibly require alteration.

- | | |
|---|--|
| 1. <i>C. striatus</i> Linn.—fuscus Fab. | *17. <i>C. affinis</i> Payk. Gyl. |
| 2. fuscus Linn.?—striatus Fab.
—Panz. 86. 5. | 18. paludosus Fab.—politus Marsh. |
| 3. Consobrinus Nob. | 19. Sturmii Gyl. |
| 4. Grapii Gyl.—Ahr. 6. 4.—niger
Dej. This insect was un-
known in Britain till I took
it at Drayton and Horning
in Norfolk, in the month of
May. | 20. bipustulatus Linn.—Oliv. 3.
t. 3. 26.—acuductus Mar.—
carbonarius Fab. |
| 5. fontinalis Leach MSS. | *21. nigro-æneus Marsh. |
| 6. oblongus Ill. Gyl. | 22. chalconotus Ill. Panz. 38. 17.
—nitidus Fab.—concinus
Mar. |
| 7. guttatus Payk.—picinus Mar.
fenestratus Panz. 90. 1. | 23. montanus Leach. |
| *8. angustior Gyl. | *24. uliginosus Linn. Gyl. Mar.? |
| 9. conspersus Marsh. Gyl. | 25. femoralis Payk. Gyl. |
| 10. bipunctatus Fab. Don. 9. 303.
—Panz. 91. 6. | 26. fuliginosus Fab.—lacustris
Fab. Panz. 38. 14.—Hyb-
neri Mar. |
| 11. adspersus Fab.—var. collaris
Marsh. | *27. guttiger Gyl. |
| 12. agilis Fab.—Panz. 90. 2. mas. | 28. fenestratus Fab.—æneus Panz.
38. 16. |
| 13. collaris Payk.—adspersus Ill.
Panz. 38. 18. | 29. obscurus Marsh. |
| 14. notatus Fab. Oliv. 3. tab. 5. 47.
—frontalis Mar.—virgula-
tus Ill. | 30. ater Panz. 38. 15.—fenestratus
Payk. |
| 15. pulverosus Knoch.—conspersus
Gyl. | 31. vitreus Payk.—didymus Oliv. 3.
t. 4. 37. |
| *16. congener Payk. Gyl. | 32. abbreviatus Fab.—Panz. 14. 1. |
| | 33. maculatus Linn. Don. 14. 501.
—var. inæqualis Mar. Panz.
14. 8. |

Gyllenhal having described a *Colymbetes elongatus*, it became necessary to drop the MS. name of our insect. A specimen was taken many years since near Wanstead House, Essex, by the late Mr. Tuther.

The plant is *Utricularia vulgaris* (Great Bladder-snout).



Printed by H. Colver, London, 2nd, 7, 10, 11.

HYDATICUS CINEREUS.

ORDER Coleoptera. FAM. Dyticidæ *Leach.* Hydrocanthari *Lat.*

Type of the Genus Dytiscus transversalis Fab.

HYDATICUS *Leach, Sam.* *Dytiscus* *Linn., Fab., Oliv., Lat., Gyl., &c.*
Antennæ inserted close to the eyes at the base of the mandibles filiform, 11-jointed, 2nd joint not much shorter than the 3rd, 4th longer than the 3rd, the remainder nearly of equal length, somewhat clavate, excepting the terminal joint which is slightly curved and somewhat conical (fig. 6).
Labrum naked transverse, slightly emarginate (1).
Mandibles small, bent, broad and bifid at their extremity (2).
Maxillæ small, bent, very acute, ciliated internally. *Palpi*, internal slender, 2-jointed, 2nd joint the longer, curved; external 4-jointed, 1st joint minute, 2nd and 3rd slightly clavate, truncate, 4th large, slightly attenuated at the apex and truncated (3).
Mentum transverse, lobed on the sides and slightly produced in the middle. *Palpi* 3-jointed, attached to a cylindric scape, 1st joint short, 2nd and 3rd long, the latter somewhat conical. *Labium* large, rounded, ciliated (4).

Head rounded. Thorax transverse broad. Elytra convex ovate, smooth in both sexes. Wings 2. Scutellum distinct. Tibiæ all short. Tarsi 5-jointed, anterior patelliform and ciliated in the males (5); the middle pair with the 3 first joints dilated with suckers beneath (5*). Claws simple, of equal length. Posterior tarsi compressed, elongated, ciliated on both sides with very long fine hairs. Claws slightly hooked, one longer than the other.

CINEREUS *Linn. Faun. Suec. p. 215. n. 771. Gyll. Ins. Suec. v. 1. p. 474. n. 8. not of Fab. Ent. Syst., nor of Mars. Ent. Brit.*
 Blackish, smooth, shining. Head ochraceous, black at the base with 2 oblique black lines between the eyes united behind. Thorax black, with an aureous ochraceous fascia across the middle uniting with the lateral margins of the same colour. Scutellum black. Elytra black, speckled with pellucid yellow, and a narrow line of the same colour down each side of the suture; external margin dull ochraceous: beneath ochraceous, ferruginous towards the apex. Antennæ and legs ochraceous, the former fuscous towards their extremity, the latter with the tibiæ and the tarsi of the 4 posterior chesnut-colour.

In the Cabinets of Mr. Chant and Mr. Bentley.

HYDATICUS is distinguished from *Dyticus* by the length of the 2nd joint of the antennæ, by the terminal joint of the palpi, and many other minuter distinctions; from *Acilius* it is still further removed by the convexity of the abdomen and the dilated tarsi of the middle pair of legs, which certainly exhibit a nearer affinity to *Dyticus*; and from both it may be distinguished by the smooth elytra of both sexes.

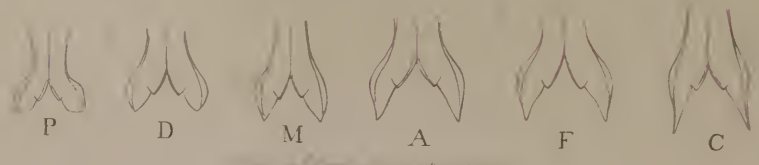
Fabricius in his *Entomologia Systematica*, in describing *Dytiscus cinereus* evidently confounded it with the male of *D. sulcatus*, referring to Linnæus for the characters, and to Schæffer's figure of *D. sulcatus* to identify it, thereby giving rise to an error, which has been extended by Mr. Marsham in his *Entomologia Britannica*; and Olivier has unluckily assisted in the confusion by referring to two figures of his own, in his description of *D. cinereus*, one of which (tab. 4. fig. 32 b) is the female; but the other (fig. 32 a) is an *Acilius* with patelliform tarsi; although it is clear from his description that he was unacquainted with the male, for he there says the anterior tarsi are simple. Schœner however, in his invaluable Synonyms, has cleared up the point, and his friend Gyllenhal has confirmed his opinion in the *Insecta Suecica*: and as the *Acilii* have the entire margin of the thorax yellow, and Linnæus in his description of *D. cinereus* expressly says "*Thorax flavus, margine anteriore et posteriore (non lateribus) nigro,*" there can be no doubt of our insect being the one described.

The scarcity of this species has contributed greatly to the confusion that has happened: upon the continent it is very rare, and in this country was unknown till Mr. Chant and Mr. Bentley took the sexes at Whittlesea Meer, the end of last July. We can now enumerate the following as British, of this rare and beautiful genus.

1. *Hydaticus cinereus* Linn., *Nobis*.
2. *transversalis* Fab., *Panz. fasc. 86. pl. 6. mas.*
m. July, near Yaxley, Huntingdonshire.
3. *stagnalis* Fab., *Panz. fasc. 91. pl. 7. fem.*
Ponds, Wiltshire.
4. *Hybneri* Fab., *Oliv. tab. 4. f. 33.*—*parapleurus* Marsham. m. July, Whittlesea Meer.

They all inhabit ponds and ditches, and are found in June and July.

The plant is *Ranunculus aquatilis* (Water Crowfoot).



DYTICUS DIMIDIATUS.

ORDER Coleoptera. FAM. Dyticidæ *Leach.* Hydrocanthari *Lat.*

Type of the Genus Dytiscus marginalis Linn.

DYTICUS *Geoff., Ill., Lat., Leach.* Dytiscus *Linn., Fab., Gyll.*

Antennæ inserted close to the eyes at the base of the mandibles, subsetaceous, naked, 11-jointed, basal joint the longest, 2nd very short, 3rd and following clavate decreasing in length to the terminal joint, which is slightly curved and truncated obliquely (fig. 6).

Labrum transverse, slightly emarginate, ciliated in the middle (1). *Mandibles* short, robust, emarginate at the apex, which is truncated obliquely (2).

Maxillæ small, bent, acute, ciliated internally with bristly spines. *Palpi*; *internal* short, 2-jointed, 1st joint shorter than the 2nd, which is slightly curved:—*external* long, 4-jointed, 1st joint small, 3 following long, of nearly equal length, subclavate, terminal joint truncated (3).

Mentum transverse, bilobed, with the centre slightly produced and emarginate. *Palpi* arising from a cylindric scape, 3-jointed, 1st joint minute, 2 following long of equal length, clavate truncate. *Labium* large, quadrate, ciliated (4).

Head rounded. Thorax transverse. Scutellum distinct. Elytra convex ovate, smooth in the males, sulcated in the females. Wings 2. Tibiæ spurred, anterior short. Tarsi 5-jointed, anterior patelliform, with suckers beneath and ciliated in the males; 2nd pair with the 3 basal joints dilated, with suckers beneath in the males (5*); posterior elongated. Claws simple, of equal length, small in the posterior pair.

DIMIDIATUS *Ill. Mag.* 3. 155. 3. *Gyll. Ins. Suec. t. 1. p. 469. n. 4.*

Male smooth, shining, olivaceous-brown. Clypeus, palpi, a band between the antennæ, sides of the thorax, margins of the elytra, and an oblique line near their apex ochraceous; an angular mark between the eyes, anterior margin of thorax, antennæ and legs ferruginous, the antennæ at their base and the anterior legs being paler, the former with the 3 first joints robust. Thorax with a channel down the centre. Elytra with 3 longitudinal punctured striæ on each, obtuse, depressed and punctured at the apex. Lobes of the sternum beneath divaricating, obtuse. *Female*: Thorax minutely punctured. Elytra with 10 deep channels on each, extending scarcely beyond the middle, the remainder punctured.

In the Author's and other Cabinets.

WITH the exception of *Hydrous piceus*, the true *Dytici* are the largest insects that inhabit the waters of Europe, and until lately there were but 3 species recorded as British. As their habits and economy are similar to the *Acilii*; I shall prefer giving the specific characters, and must refer to the detailed accounts of De Geer, Roësel, and Latreille, for their histories.

I. Furcate process of sternum obtuse. Thorax not entirely margined with yellow.

1. *D. punctulatus* *Fab. Ent. Syst. v. 1. pars 1. 188. 4. Don. Brit. Ins. 15. 540. Panz. F. G. 110. 13 & 14.*

Much the smallest; sides only of thorax yellow.

Antennæ robust, articulations short; each elytron of female with 9 striæ. Sternum very obtuse (fig. P).

2. *dimidiatus* *Gyll. Ins. Suec. v. 1. p. 469. n. 4.*

Much the largest, sides of thorax yellow, and a narrow ferruginous line at the other margins, 3 basal joints of antennæ much more robust than the others, each elytron of the female with 10 striæ, extending scarcely beyond the middle (D).

II. Furcate process of sternum acute. Thorax completely margined with yellow.

a. Anterior claws large in the males.

3. *marginalis* *Linn. Syst. Nat. 2. 665. 7. Don. Brit. Ins. 5. 161. Panz. F. G. 86. 3 & 4.*

Spines of sternum rather short, not very acute (M).

4. *circumflexus* *Fab. Syst. Eleut. 1. 258. 4.*

Spines of sternum slender, elongated, very acute (C).

b. Anterior claws small in both sexes.

5. *angustatus* *Stephens's MSS. Nobis.*

Spines of sternum diverging, considerably acute (A).

6. *flavo-maculatus* *Lat. Hist. Nat. ? v. 8. p. 162. n. 3.*

Elytra smooth in both sexes? Sternum like the last (F).

This last is a most extraordinary anomaly, respecting which the most learned entomologists are completely at variance. My specimen proving upon dissection to be a female, as well as 3 others dissected by Professor Bonelli, I cannot but consider it a variety of the female of *D. angustatus*, with which sex it perfectly agrees in structure, although in sculpture it has every appearance of the males of that species.

All the *Dytici* are found in ponds and ditches during May, June, and July. The fine species figured, as well as *D. angustatus*, were first discovered at Whittlesea Meer by Mr. Chant and Mr. Bentley, to whom I am indebted for examples of the different sternums by which the species are so easily distinguished; and Dr. Stephenson has since captured them in the same neighbourhood, and has obligingly favoured me with specimens.



Painted by J. Curtis London Feb. 1. 1827

CYBISTER RÆSELII.

ORDER Coleoptera. FAM. Dyticidæ *Leach*. Hydrocanthari *Lat*.

Type of the Genus Dytiscus lateralis Fab.

CYBISTER *Nob.*—Trogus *Leach.*—Dytiscus *Fab.*

Antennæ inserted close to the eyes at the base of the mandibles, subsetaceous, naked, 11-jointed, basal joint not so long as the 3rd, 2nd joint very short, 3rd the longest, the remainder decreasing in length to the last, which is slightly bent and subconic at the apex (fig. 6).

Labrum transverse, slightly emarginate, with a small fleshy lobe beneath in the middle (1).

Mandibles short, robust, emarginate at the apex, which is truncated obliquely, with 2 small teeth on the internal margin (2).

Maxillæ small, bent, acute, ciliated internally with rigid bristles.

Palpi; *internal* short, 2-jointed, basal joint shorter than the 2nd which is slightly curved; *external* long, 4-jointed, 1st joint half as long as the 2nd and 3rd which are of equal length and truncated, the 4th longer and a little dilated on the external side (3).

Mentum transverse, bilobed, the centre being slightly produced.

Palpi arising from cylindric scapes, 3-jointed, 1st joint small, 2 following long of equal length, clavate-truncate. *Labium* large quadrate-ovate, ciliated (4).

Head rounded. Thorax transverse. Scutellum distinct. Elytra smooth in the males, vermiculated the greater portion of their length from the base in the females. Wings two. Tibiæ spurred, very short, the anterior pair being the longest. Tarsi 5-jointed, anterior patelliform in the males, the 3 first joints being dilated, with suckers beneath and ciliated, the 4th minute, 5th not very long (5); 2nd pair more robust in the males, none of the joints dilated, the 1st and 2nd pubescent beneath; posterior elongated. Claws unequal, posterior monodactyle (5†, a hind leg).

Obs. The dissections were made from a male of *C. Ræselii*.

RÆSELII *Fab. Ent. Syst. v. 1. pars 1. p. 188, n. 5.*—dispar *Ross. Fn. Etrus. 1. 199. 489.*

Female smooth, shining, olive green. Clypeus and labrum ochraceous. Thorax sculptured with small curly lines and points, with a slight channel down the centre, sides margined with ochre, anterior and posterior margins slightly ferruginous: scutellum inclining to the same colour. Elytra vermiculated $\frac{3}{4}$ of their length from the base, 2 widely punctured striæ on each, only visible at the apex, which is quite smooth as well as the suture, an ochraceous broad line tapering towards the apex, next the external margin, which is the same colour as the elytra. Antennæ and legs ferruginous. Tibiæ and tarsi castaneous, the latter inclining to black. Beneath ochraceous variegated with ferruginous. Furcate process of metasternum obtuse.

In the Cabinet of Mr. Griesbach.

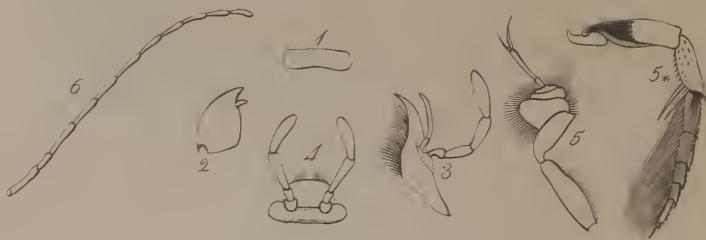
THIS group of *Dyticidæ* was first defined by Dr. Leach, and established as a genus in the 3rd volume of the Zoological Miscellany, where unfortunately, the name of *Trogus* is assigned to it, which had been applied many years before by Panzer to some of the *Ichneumonidæ*; it has therefore become necessary to supersede it, and *Cybister* (which is derived from the Greek) is not inapplicable.

As the natural situation of our genus appears to be between *Acilius* and *Dyticus* (both of which have been figured and described in former parts of this work), we propose the following arrangement for the commencement of the family, beginning with *Acilius*, which, from its depressed form, short tibiæ, unequal claws, &c. is allied to *Cybister*; after which follows *Dyticus*, commencing with *D. latissimus* Linn., and ending with *D. angustatus* Steph., which leads to *Hydaticus*, being more convex, and having the intermediate tarsi dilated at their base, a character possessed by *Colymbetes*, which will consequently follow.

The few species at present known of our genus are widely dispersed, having been received from China, Tranquebar, the Mauritius, and North America. *C. Roeselii* has long been described as a native of Germany, France and Sweden, but it has never before been recorded as British; and the only indigenous specimen at present known is the female figured, which was found the 30th Sept. 1826, in a puddle at Walton, Essex, by J. Dane, Esq., who presented it to the gentleman in whose cabinet it is preserved, and through whose kindness we are enabled to present our readers with this fine and valuable acquisition.

The difference of sculpture in the sexes is fully described in the generic characters: in colour they are very similar, the males are generally larger, and in our species they are blackish beneath.

The beautiful *Hottonia palustris* (Water-violet) accompanies the insect in the plate.



Drawn by J. Curtis. London Apr. 1 1825

ACILIUS CALIGINOSUS.

ORDER Coleoptera. FAM. Dyticidæ Leach. Hydrocanthari Lat.

Type of the Genus Dytiscus sulcatus Linn.

ACILIUS Leach. Dytiscus Linn., Fab., Gyll. Dyticus Geoff., Lat.
Antennæ inserted close to the eyes, at the base of the mandibles, smooth, filiform, 11-jointed, 2nd joint short, 3rd long clavate, the following clavate, decreasing in length to the terminal joint, which is slightly curved (fig. 6).
Labrum naked, transverse, slightly emarginate (1).
Mandibles small, bent, broad and bifid at the apex (2).
Maxillæ small, bent, acute, ciliated internally: *Palpi*; *internal* attenuated, 2-jointed, 1st joint small, 2nd long, curved; *external* 4-jointed, 1st joint minute, 2nd and 3rd slightly clavate, 4th large, longer than the 3rd, attenuated, rounded at the apex (3).
Mentum transverse, slightly lobed at the sides: *Palpi* 3-jointed, attached to a cup-shaped scape, 1st joint short, 2nd and 3rd long, the latter somewhat clavate: *Labium* large, rounded, ciliated (4).
 Head somewhat small, rounded. Thorax transverse, broad. Elytra depressed, ovate, narrow at the base, smooth in the males, sulcated and hairy in the females. Wings 2. Scutellum distinct. Tibiæ all short. Tarsi 5-jointed, anterior, patelliform in the males, the first 3 joints being dilated, ciliated, with suckers beneath. Claws simple, the internal one being the longest (5). Posterior tarsi compressed, elongated, ciliated on both sides with very long hairs, one claw very minute (5*).

CALIGINOSUS Nobis.

Male smooth, minutely punctured. Head smooth, black, anterior part and a transverse line between the eyes dull reddish-ochraceous. Thorax black, with the margins, and a transverse line in the middle dilated at the ends, ochraceous. Elytra ochraceous, pubescent, with 3 obscure lines on each, minutely punctured with black, edges of the suture and margin near the apex unspotted; beneath piceous black, the sternum, margins of thorax and spots down the sides of the abdomen ochraceous. Antennæ and thighs pale and dull ochraceous, tibiæ and tarsi ferruginous, clouded with black.—*Female*: Elytra with 5 elevated longitudinal lines on each, the intermediate surface villose. Abdomen beneath dull ochraceous.

In the Cabinets of Mr. Chant, Mr. Bentley, and the Author.

THE *Dyticidæ*, although inhabiting a different element to the *Carabidæ*, are closely allied to them in structure, particularly in the form of the antennæ and the organs of mastication, the maxillæ being furnished with 2 pair of palpi; and the anterior tarsi are commonly dilated in the males.

The genus *Acilius*, established by Dr. Leach in the *Zoological Miscellany*, may be distinguished from *Dyticus* by the great flatness of the insects, by the hairy elytra of the females, which have but few striæ, and by the basal joints of the tarsi in the 2nd pair of legs not being dilated; the instrumenta cibaria also vary particularly in the form of the mentum, and the terminal joint of the external maxillary palpus, which is longer than the penultimate, and thickest in the middle.

Our insect appearing upon a careful examination to be unnoticed by any author we have been able to consult, and being darker than the common species, the specific name of *caliginosus* has been thought applicable. It has been ascertained to be British by Mr. Chant, who, with his friend Mr. Bentley, took it plentifully in the ditches at Whittlesea Meer, Huntingdonshire, the end of July 1824. It is smaller and darker than *A. sulcatus*, and the thighs are entirely pale and not black at their base in the posterior pair, as in *A. sulcatus* (fig. 5* which is shaded to show the difference).*

The larvæ, which are (like those of the *Carabidæ*) very voracious, inhabit the water, living upon other insects and even small fishes: the perfect insects, which with their hind legs row themselves about with the greatest ease, can also fly well; they are exceedingly ravenous, and will destroy each other if confined together.

The plant figured is *Myosotis palustris* (Marsh Mouse-ear).

* It is singular that Linnæus should have been unacquainted with the female of our common species, as appears not only from his Works but by his cabinet, which Sir James E. Smith politely allowed me to examine a few years since.



Pub. by G. Smith, London (Aug 4. 1825)

GYRINUS BICOLOR.

ORDER Coleoptera. FAM. Gyrinidæ *Leach*. Gyrinites *Lat*.

Type of the Genus G. Natator Linn.

GYRINUS *Linn., Fab., Oliv., Lat., Marsh, Gyll., Leach, &c.*

Antennæ inserted beneath the superior portion of the eyes, at the side of the clypeus, very short, rigid, porrected, 9-jointed; 1st joint large globose, produced on the external side in a triangular compressed, ciliated lobe; the other joints forming a clavate, cylindric, arcuate mass arising from the upper side of the 1st joint, basal joint pedunculate, 3rd and 6 following transverse, terminal joint semi-oval (f. 6).

Labrum rigid, exserted, transverse, convex, rounded before and ciliated (1).

Mandibles scarcely exserted, strong, corneous, very much bent, apex dilated transversely, bidentate, with a tooth on the internal edge towards the base (2).

Maxillæ acute, ciliated with rigid bristles, a palpiform, exarticulate bent lobe, on the internal side, being a modification of the internal palpus of the Dyticidæ. *Palpi* incrassated, 4-jointed, 1st joint small, 2nd and 3rd somewhat cup-shaped, 4th large ovate (3).

Mentum large, corneous, somewhat oval, bilobed, sides semi-orbicular. *Palpi* small, 3-jointed, 1st joint minute, 2nd clavate, 3rd robust, conical. *Lip* corneous, small, quadrate, shorter than the mentum (4).

Head large, somewhat trigonate. Eyes 4, circular, 2 above and 2 beneath the antennæ. Thorax short, transverse, sinuated before and behind. Elytra with the margins acute. Scutellum minute. Wings 2. Pectus and Abdomen carinated in the middle. Anterior feet formed for walking, elongate, geniculate, porrect; four posterior short, compressed, membranaceous, formed for swimming, external edges fimbriated with compressed hairs. Thighs and Tibiæ short, trigonate in the 4 posterior legs, the hinder having 2 little spurs at the internal angle. Tarsi 5-jointed, the terminal joint being the longest in the anterior pair, compressed and produced internally in the 4 posterior pair, the terminal joint being very minute. Claws 2, long in the fore feet, minute in the others (5 a fore leg, 5* a hind leg).

BICOLOR *Fab. Ent. Syst. v. 1. pars 1. 202. 2. Gyll. 1. 142. 2. Elongatus Marsh 100. 4.*

Long, narrow, cæruleous-black, shining. Thorax with a transverse impression before the middle. Elytra very long, appearing attenuated posteriorly, truncated, rounded, having 11 finely punctured striæ on each, inflected margin ferruginous. Suture æneous. Abdomen villose above, black beneath, ferruginous at the apex. Mouth and centre of pectus ferruginous. Legs ochraceous. Male much narrower than the female.

In the Author's and other Cabinets.

THE curious structure of the auriform antennæ of this genus, agreeing considerably with those of *Parnus* figured in the next plate, induced Latreille to form them into a family which he called *Otiophori*, in his *Genera Crustaceorum*, &c.; but he subsequently brought back *Gyrinus* to follow the *Dyticidæ*, and left *Parnus* with his *Byrrhii*. Gyllenhal, following Latreille, placed these genera also together. Mr. W. S. MacLeay, in the first part of *Annulosa Javanica*, having noticed Latreille's error in placing them together,—thereby, as he justly says, “confounding a relation of analogy with one of affinity,”—I have thought it a good opportunity of introducing these genera together, to prove that there is no affinity beyond the Linnean system, that of the antennæ, the form of the legs and the structure of the mouth being totally different.

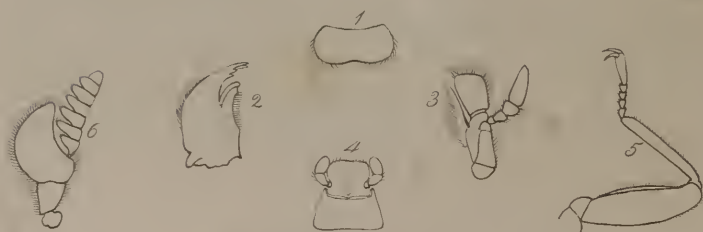
The *Gyrini* live in society, and many of them are extremely common in our ditches and rivers the whole of the spring and summer, where they must have attracted the notice of every lover of nature, by the rapid and curious evolutions which they perform during fine weather upon the face of the water (from whence their English name of Whirl-wigs), diving below the surface when alarmed, and carrying down with them a bubble of air appearing like quicksilver, as has been remarked by Fabricius. In dull and cold weather they secrete themselves under the banks, or at the bottom of the water: most of them have a fetid smell.

The following species have been detected in this country, viz.

1. *G. æneus* Leach.
2. *marinus* Gyll.
3. *minutus* Fab.—*bicolor* Oliv.—*Kirbii* Marsh.
4. *Natator* Linn.
5. *bicolor* Fab.—*elongatus* Marsh.
6. *villosus* Fab.—*Modeeri* Marsh.

It is likely that this last species will be formed into a genus, as the convex form, villose and punctured surface, and projecting labrum indicate a different economy: indeed I suspect that this species is not gregarious.

The plant figured is *Parnassia palustris* (Grass of Parnassus).



Col. Lind. Nov. 1825

PARNUS IMPRESSUS.

ORDER Coleoptera. FAM. Parnidæ Leach. Byrrhii Lat.

Type of the Genus P. prolifericornis Fab.

PARNUS Fab., Marsh, Leach. Dermestes Geoff. Dryops Oliv., Lat.

Antennæ inserted beneath the eyes and lodged in a little cavity near their internal edge, shorter than the head, woolly, 9-jointed; 1st joint somewhat cylindric, 2nd large, very much produced on the internal side; the other 7 joints forming a serrated mass, attached to the outside near the base of the 2nd joint, by which they are frequently concealed; 1st joint attached by a small peduncle, the 5 following somewhat serrated, terminal joint semi-orbicular (f. 6).

Labrum exserted, coriaceo-membranaceous, transverse, slightly emarginate, sides rounded, ciliated (1).

Mandibles concealed, corneous, strong, angulated at the base, apex bidentate with two smaller teeth just below the apex on the internal edge which is concave, a compressed membranaceous lobe near the middle, rounded and corneous above, ciliated externally (2).

Maxillæ bilobed, internal lobe slender, somewhat acute, articulated near the apex, ciliated internally; external lobe large, somewhat quadrate-ovate, with a spine at the internal angle, ciliated externally. *Palpi* short, robust, 4-jointed, 3 first joints hairy, basal joint minute, 2nd and 3rd cup-shaped, 4th long, ovate-conic (3).

Mentum transverse, quadrate, narrowed before, anterior angles produced. *Labium* large, somewhat quadrate, hairy, angles rounded. *Palpi* short, robust, 3-jointed; 1st joint minute. 2nd clavate, 3rd oval (4).

Head concealed up to the eyes, somewhat triangular above. Eyes orbicular. Thorax transverse quadrate, sides thickened, margined, anterior angles produced. Scutellum triangular. Abdomen somewhat cylindric or elliptic, convex, margined. Sternum produced behind in the centre into an acuminate lobe. Legs alike. Thighs channelled beneath. Tibiæ cylindric, unarmed. Tarsi filiform, 5-jointed, first 4 joints small, 5th long, clavate. Claws long.

IMPRESSUS nob.

Olivaceous-brown, minutely punctured, villose. Thorax with a fovea on each side, near the base, equidistant from the margin and each other. Elytra with 7 or 8 obscure punctured striæ on each. Serrated mass of antennæ, thighs at their base, apex of tibiæ, tarsi, and claws, ferruginous. Beneath ferruginous-olive, with ochraceous pubescence.

In the Author's Cabinet.

ENTOMOLOGISTS have been very undecided with regard to the situation that these insects would most naturally occupy. Geoffroy, who gave them the significant name of *Porte-oreilles*, placed them amongst the *Dermestes*, influenced probably by the habit of the body, and the form of the legs; whilst Rossi was induced from the structure of the sternum, to assimilate them with the *Elaters*. Latreille's ideas have been already noticed in the account of *Gyrinus*. Dr. Leach very properly placed them between *Linnius* Müller, (*Elmis* Lat.) and *Heterocerus*. It will not be irrelevant here to remark, that the articulated mass forming the club of the antennæ is not cylindric, like that of *Gyrinus*, but is produced on one side, thereby in some degree assuming the character of that organ in the *Hydrophilidæ*, which follow soon after, according to the views of Dr. Leach and the natural system of Mr. W. S. MacLeay in the valuable work before alluded to.

The original generic name given to these insects by Olivier was *Dryops*, in which he was followed by Latreille; but it being found necessary to divide the genus, Olivier's name has been assigned to a species that has not hitherto been discovered in this country (*P. acuminatus* F.), and Fabricius's name *Parnus* restored to our genus, which appears to contain four British species; and as two of them are new, the following characters are subjoined to distinguish them.

1. *P. prolifericornis* F., sericeus Leach.—Olivaceous, villose, minutely punctured, elytra very obscurely striated.

2. *P. impressus* nob.—Minutely punctured, with two impressions towards the base of the thorax.

3. *P. bicolor* nob.—Minutely punctured, with coarse imperfect striæ at the base of the elytra, head and thorax black, elytra, legs and antennæ, ferruginous.

4. *P. auriculatus* Ill.—Ovate, woolly: head and thorax deeply punctured, the margins of the latter very much narrowed before; elytra shining, coarsely punctured, with imperfect striæ at the base.

Mr. Samouelle says that the *Parni* inhabit the roots and blades of grass at the sides of ponds and ditches; they are also to be found amongst the rejectamenta left upon marshes and meadows after a flood, during the winter and spring. By the form of their maxillæ it is supposed that they eat animal substances, and that the down which covers them prevents the water from penetrating their bodies.

The plant figured is *Aster Tripolium* (Sea Starwort).



March 11, 11
Bois No. 7

Caltha palustris



Col. by J. M. S. May 1 1828

HETEROCERUS OBSOLETUS.

ORDER Coleoptera. FAM. Parnidæ *Leach.* Byrrhii *Lat.*

Type of the Genus *Heterocerus marginatus Bosc.*

HETEROCERUS *Bosc., Fab., Lat., Marsh., Panz.*—*Apatæ Fab.*—*Dermestes Thunb.*

Antennæ inserted close to the eyes at the base of the mandibles, short, pubescent, 11-jointed, basal and 2nd joints producing very long hairs internally, the former joint very large, obtriginate, the latter large cup-shaped, 3rd and 4th minute, the 6 following large, cup-shaped, (giving a serrated appearance) the 11th orbicular (6).

Labrum very rough and hairy, semiorbicular, slightly notched (1). *Mandibles* rather long and bent, with a tooth and some long bristles on the external side, tridentate at the apex and furnished with a long membranous lobe on the internal side, ciliated and notched at the middle (2).

Maxillæ very long and slender, rigid and pilose, bilobed, internal lobe short obtuse, external rhomboidal, both ciliated with bristly spines. *Palpi* triarticulate, 1st and 2nd joints of nearly equal size, subturbinate, 3rd a little larger securiform (3).

Mentum large, subcordate, pilose, emarginate, forming 2 lobes. *Labium* obcordate elongate, ciliated. *Palpi* approximating, arising near the middle of the lip, short clothed with very long hairs, triarticulate, basal joint small, slender, 2nd and 3rd robust, the latter conical truncate (4).

Head elongated, broad at the base, narrow before. Eyes small, remote. Thorax transverse subovate. Scutellum minute. Elytra ovate, as broad as the thorax. Wings very ample. Tibiæ broad compressed, serrated with long spines on the external margin and at the apex. Tarsi clothed with very long hair beneath, 4-jointed, basal joint long, 2nd and 3rd small, 4th the length of the 1st, clavate. Claws long and slender (5, a fore leg).

Obs. The dissections are from *H. obsoletus Nob.*

OBSOLETUS *Leach's MSS.*

Piceous, shining, thickly punctured and very pubescent. Mandibles castaneous. Thorax with a ferruginous spot on each side behind the eyes. Elytra, each with an ochraceous spot at the base, 3 small ones near the middle and 4 larger towards the apex, spines of tibiæ and tarsi castaneous at the apex.

In the Author's and other Cabinets.

HETEROCERUS is undoubtedly allied to *Parnus*; nevertheless the organs of manducation present some very different characters, especially in the absence of a joint in the maxillary palpus: and the 4-jointed tarsi and spined tibiæ are somewhat anomalous to the neighbouring genera; although it must not be forgotten that in the *Hydrophilidæ* the basal joint is often very minute; and in our genus, to supply the deficiency, it is as long as the two following, as if the first and second had been united to form a longer base: and the same provision obtains in the heteromerous beetles, where sometimes the basal joint of the posterior tarsi is very long, as may be seen by referring to plate 155.

Three species of the genus *Heterocerus* appear to be natives of Great Britain.

1. *H. marginatus* Bosc., *Fab.*—*Panz.* 23. 12.—*fenestratus* Thunb.

30th June, 1827, I found it in profusion on the sands at Broughton, Lancashire; they were principally met with under small dead crabs left by the tide, beneath which they were burrowing into the sand.

2. *H. lævigatus* *Fab.*—*Panz.* 23, 13.

In the spring I have met with it on marshes in Norfolk, burrowing into the mud on the sides of ditches and ponds.

3. *H. obsoletus.*—*Curt. Brit. Ent. pl.* 224.

This species is met with, I believe, near Rochester. I have found it on salt marshes in Suffolk the beginning of May, at the sides of ditches, running on the mud when the sun shone. It is the largest and darkest of the species, and much more densely clothed with short and dusky hair. I have not been able to discover any sexual character; some specimens, however, like that figured, have the thorax narrower than the elytra, whilst in others it is quite as broad and more convex; these are also larger, and may be the females.

The plant is *Caltha palustris* (Marsh Marigold).



Menyanthes trifoliata.

Linnaeus, Sp. Pl. 1: 224. 1753.

ELMIS VOLCKMARI.

ORDER Coleoptera. FAM. Elmidæ Curt.

*Type of the Genus, Dytiscus Volckmari Panz.*ELMIS *Lat., Steph.*—Linnaeus *Mül., Meg., Gyl., Lea., Sam.*—Dytiscus *Panz.*—Chrysomela *Mar.*

Antennæ inserted before the eyes on each side the head, as long as the thorax, slightly clavate, 11-jointed, 1st and 2nd joints rather stout, the 7 following slender, obovate-truncate, the 10th and 11th more robust, the former obovate-truncate, the latter twice as long subovate, pubescent at the apex (6).

Labrum exserted, large, pilose, transverse-ovate, thickly ciliated (1).

Mandibles, bent, obtuse and bifid at the apex, internal margin very much excavated and furnished with a broad membrane (2).

Maxillæ small, terminated by a rounded lobe, densely clothed round the apex with long curved hairs. *Palpi*; *internal* short, biarticulate, terminal joint curved and pilose: *external* 4-jointed, basal joint minute, 2nd obovate-truncate, 3rd somewhat cup-shaped, 4th the longest, slightly curved and terminated by a vesicle (3).

Mentum subquadrate, the sides convex. *Labium* narrowed at its base, but very much dilated and ciliated anteriorly. *Palpi* attached to scapes at the base of the Lip and scarcely extending beyond it, 3-jointed, basal joint small, 2nd rather larger, 3rd the largest, oval and terminated by a vesicle (4).

Head subglobose, sunk to the Eyes which are small, orbicular, lateral and not prominent. Thorax convex, sides generally with a broad margin, arched anteriorly and sinuated near the angles which are acute, somewhat lobed at the Scutellum which is small. Elytra convex. Wings long. Thighs rather robust. Tibiæ simple and slender. Tarsi as long as the tibiæ, 5-jointed, basal joint longer than the 3 following which are subovate-truncate, 5th very long robust and clavate. Claws simple acute (5).

VOLCKMARI *Panz., Lat.*—buprestoides *Marsh.*

Black smooth and shining, minutely punctured. *Antennæ* testaceous, fuscous at the apex. Thorax with broad slightly elevated lateral margins, leaving a very convex and ovate-truncate space in the centre. Elytra considerably broader than the thorax, with a slight cupreous tinge, sparingly clothed with short pubescence, each having 8 strongly punctured striæ: tibiæ somewhat castaneous, and the tarsi castaneous.

In the Author's and other Cabinets.

WHILST on the one hand *Elmis* makes an approach to the *Parnidæ*, it appears on the other to be allied to the *Helophoridæ*; nevertheless the trophi and antennæ are so very different from both, that it does not seem possible to include our genus with either, for which reason I have proposed the family *Elmidæ*. Panzer called the type a *Dytiscus*, from its inhabiting the water; and Marsham, viewing its straight antennæ and margined thorax, placed it with the *Chrysomelæ*. Latreille first considered it to connect *Hister* and *Heterocerus*, but subsequently arranged it more naturally between the *Parnidæ* and *Hydrophilidæ*.

The following species are British.

1. *E. Volckmari* Panz.—*Curtis Brit. Ent. pl.* 294.
May, June and August: at roots of grass on the banks, also under stones in the beds of rivers and brooks; near Hebden-bridge, Yorkshire, Hatfield and Bristol.
2. *E. tuberculatus* Mül.—*lineatus* Kirby.
At Clengre, Gloucestershire; also in Norfolk, Suffolk, and near Hull, Yorkshire.
3. *E. variabilis* Leach.—*Steph. pl.* 13. f. 4.
Hebden-bridge, and near Carlisle; Netley, Shropshire, and Spitchwick, Devon.
4. *E. lacustris* Spence.—*Steph.*—*stagnalis* Kirby?
Near Hull, and under stones in the river at Costessey, Norfolk.
5. *E. fluviatilis* Steph.—*Troglodytes* Gyl.?
Said to have been found in Norfolk.
6. *E. parallelipedus* Mül.—*Steph. pl.* 13. f. 5.
In a brook near Hebden-bridge, and supposed to have been found near Exeter.
7. *E. æneus* Mül.—*Megerlei* Ill.—*Maugetii* Lat.
This is found from June to September, distributed over the kingdom, and is much attached to the leaves of *Menyanthes trifoliata*.
8. *E. obscurus* Mül.?—*Maugetii* Steph.
Probably a variety only of the last.
9. *E. cupreus* Mül.—*Steph. pl.* 13. f. 6.
Under stones in the outlet at Costessey Mill, Norfolk; also in June near Hatfield; and I am indebted to Miss E. Hill, of Pilton, Devon, for specimens from the river Avon. Mr. Hobson and Mr. Smith having presented me with several of the species, the 5th is the only one I do not possess.

Some of these insects being found upon the leaves of the *Menyanthes trifoliata* (Marsh Trefoil or Bogbean), this beautiful plant is represented in the plate.



Polanogon pectinatus

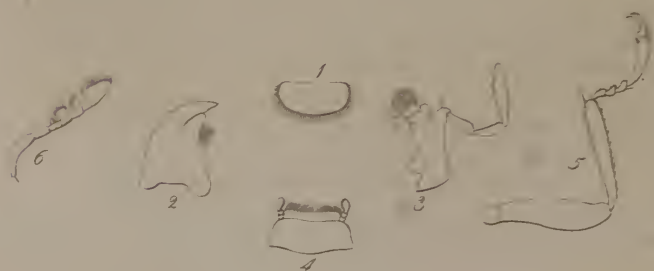


Plate by J. H. S. S. S. S. S.

HYDROCHUS ELONGATUS.

ORDER Coleoptera. FAM. Helophoridae Leach.

*Type of the Genus, Elophorus elongatus Fab.*HYDROCHUS Germ., Lea., Sam.—Elophorus Fab., Oliv., Panz., Gyll.
—Hydrophilus Mars.

Antennæ inserted close to the anterior margin of the eyes at the base of the mandibles, shorter than the head and concealed beneath it, clavate, 7?-jointed, basal joint long, curved and clavate, 2nd shorter sub-oval, 3rd and 4th minute, the latter internally pubescent, the remainder forming an elongated club, very hairy on the inside, 5th and 6th joints somewhat hatchet-shaped, 7th long and conical (6).

Labrum transverse-oval, the margin densely ciliated (1).

Mandibles very convex externally, acute at the apex, a portion of the internal margin membranous and pubescent (2).

Maxillæ rather long, internal lobe small, curved and ciliated, external large, bent inward and terminated by numerous strong curved hairs. *Palpi* long 4-jointed, basal joint minute, 2nd and 3rd long subclavate, 4th very long, subfusiform (3).

Mentum transverse, anterior angles rounded. *Lip* broad and short, densely ciliated. *Palpi* very remote and small, triarticulate, 1st and 2nd joints subglobose, 3rd the largest obovate (4).

Head porrected, broad and subtrigonal. Eyes lateral prominent and globose, not touching the Thorax which is subquadrate. Scutellum minute. Elytra broader than the thorax, very long and somewhat elliptical. Wings ample. Legs of equal length, very similar, slender, the anterior appearing long. Tibiæ compressed. Tarsi long and 4-jointed, 3 first joints short, 4th very long and clavate. Claws long and curved (5 a fore leg).

ELONGATUS Fab. Ent. Syst. 1. 204. 3.—Gyll. 1. 131. 7.—Panz.? 26. 7
—Curtis's Guide, Gen. 105. 1.—cicindeloides Mars. 411. 28.

Eneous, sometimes blackish. Trophi and legs castaneous, antennæ ochreous, club and base of the mandibles and tips of the tarsi black. Head and thorax strongly punctured, the latter with a deep fovea on each side, also one in the centre and 2 at the base. Elytra with 10 deeply punctured striæ on each, the suture and alternate spaces being elevated, that between the 2nd and 3rd striæ not extending beyond the middle and the space between the 3rd and 4th striæ elevated only from the middle towards the apex.

In the Author's and other Cabinets.

In most insects the first pair of legs is the shortest, and the hinder pair the longest, the length being given by the tibiæ and tarsi; in *Gyrinus*, however, the anterior pair is the longest, in *Parnus* the legs are very similar, and in *Hydrochus* they are all perfectly alike, which gives the insect a peculiar character: to those genera *Hydrochus* appears to be related, as well as to *Helophorus* and *Hydræna* (pl. 307).

These insects inhabit ponds and ditches; they are found on mud at the sides, and on plants in the water, on which sometimes they are seen floating.

1. *H. elongatus* *Fab.* *Curt. Brit. Ent. pl.* 359.

April and May, sides of ponds, Battersea, and other places round London; also in Norfolk, Suffolk, and the West of England. Taken at Nottingham by Dr. Howitt, and at Colchester by Mr. Davis.

2. *H. crenatus* *Fab. E. S.* 1. 205. 6.—*Oliv.* 3. No. 38. *pl.* 1. *f.* 4.

Narrower and shorter than *H. elongatus*: beautiful glittering green, sometimes cupreous or black. Trophi and legs castaneous, tips of palpi, antennæ and tarsi black. Head and thorax deeply punctured, the foveæ on the latter shallow, with a large deep puncture near each posterior angle. Elytra with 10 regularly and deeply punctured lines on each, giving the spaces between, which are very narrow and convex, a crenated appearance.

The above species have been frequently confounded, by Naturalists paying too much regard to colour: it is difficult to decide with certainty to which Panzer's and Olivier's figures belong; but as that of the latter author does not show the elevated striæ on the elytra, and is too small for *H. elongatus*, I have referred it to this species.

Taken in the same situations as the former insect, near London, and Glanville's Wootton Dorsetshire, and in Norfolk.

3. *H. brevis* *Herbst.* *Payk.—Gyll.* 1. 132. 8.

$1\frac{1}{3}$ line long: dull black, antennæ and legs pitchy, middle of the tibiæ and tarsi castaneous: head and thorax rugose, the latter with 5 deep foveæ similar to *H. elongatus*: elytra convex and ovate, the suture and 4 sharp ridges on each crenated, with two rows of large punctures between each.

May, June, and July. Ditches in Norfolk, at Whittlesea Mere, and near Bristol.

The plant is *Potamogeton pectinatus* (Fennel-leaved Pondweed).



ELOPHORUS FENNICUS.

ORDER Coleoptera. FAM. Helophoridae Leach.

Type of the Genus, Silpha aquatica Linn.

ELOPHORUS *Fab., Lat., Gyl., Curt.*—Helophorus *Leach.*—Hydrophilus *De Geer, Marsh.*—Dermestes *Geof.*—Silpha *Linn.*

Antennæ remote, inserted before the eyes at the base of the mandibles, small capitate and 9-jointed, basal joint the longest, stout and clavate, 2nd elongate-ovate, 3 following slender and oblong, the 5th being a little dilated at the apex, the remainder forming a compressed pubescent club, 6th joint semi-ovate, 2 following large and cup-shaped, 9th suborbicular (6).

Labrum transverse, the sides sloped, forming an angle towards the base, the anterior margin truncated and irregularly ciliated (1).

Mandibles alike, subtrigonal, rounded and hairy externally, pointed at the apex, slightly emarginate below, with a sharp notch beneath, the internal margin ciliated with stout bristles, submembranous towards the base (2).

Maxillæ oblong, terminated by an oval transverse lobe, very hairy externally with an internal lobe ciliated on the inside, with 3 or 4 spines at the apex. *Palpi* not longer than the antennæ, rather stout naked and 4-jointed, basal joint minute, 2nd long subclavate, 3rd considerably shorter but stouter, 4th the largest, elongate-ovate, or subfusiform (3).

Mentum large, subquadrate, anterior angles oblique, slightly dilated at the base. *Mentum* forming a very hairy lobe on each side. *Palpi* remote, not small, triarticulate, basal joint minute, 2nd long and subclavate, 3rd the largest, very hairy, elongate-ovate (4).

Head *subtrigonal obtuse; clypeus entire: eyes small sessile lateral and remote.* Thorax *transverse broader than the head.* Scutellum *concealed.* Elytra *broader than the thorax, elliptical.* Wings *ample.* Legs *compressed, anterior the shortest: thighs rather broad: tibiæ, anterior the broadest, with 2 short spines at the apex and 2 outside, and somewhat serrated (5): tarsi as long as the tibiæ in the 4 anterior feet, 5-jointed, basal joint minute and concealed, 3 following short, the 2nd being a little the longest, especially in the hinder feet, 5th as long as the others united in the 4 anterior: claws rather long and acute.*

FENNICUS *Payk.*—*Curt. Guide, Gen.* 106.6.—*cinereus Marsh.* 410. 26.

In the Author's and other Cabinets.

THE insects of this genus inhabit ditches and ponds, they are to be found basking in the sun upon aquatic plants, walking by the water's edge, frequently upon the surface, and sometimes floating on their backs: they are also met with flying, both in the heat of the day and in the evening. The transverse thorax and shorter anterior legs will at once distinguish our genus from *Hydrochus*, and the large terminal joint of the palpi will readily separate it from *Ochthebius*. The following are British species:

1. *E. aquaticus* L.—*Panz.* 26. 6.—*grandis* Ill.—*stagnalis* Mars. 409. 23.

Found everywhere, the year round, in stagnant ponds and ditches.

2. *E. granularis* L.—*aquaticus* F.—*flavipes* Oliv. 3. No. 38. *pl.* 1. *f.* 3. *var.*

In stagnant water everywhere.

- 2^a. *E. griseus* Ill.—*minutus* Oliv. 3. No. 38. *pl.* 1. *f.* 6.—*affinis* Mars. 409. 24.

Near London and Hertford, in Surrey, Devon and Norfolk.

3. *E. dorsalis* Mars. 410. 25.—*Ste.* *pl.* 14. *f.* 1.

Taken with the last and is probably only a variety.

4. *E. viridicollis* Kirb.—*Ste.* 2. 112.

In Suffolk and near London.

5. *E. tuberculatus* Gyl. 1. 129. 4.

In the spring, near Southend, Essex.

6. *E. fennicus* Payk.—*Curt. Brit. Ent.* *pl.* 466.

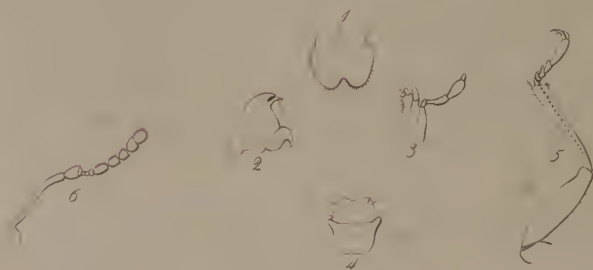
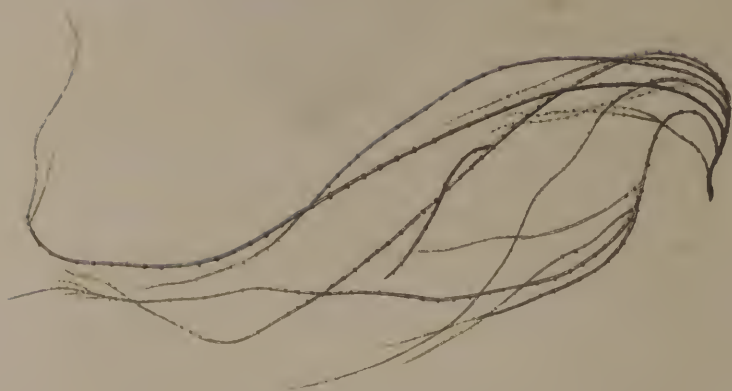
Ochreous, head and thorax coarsely punctured, the former with a V shaped impression on the crown, and a castaneous spot before each eye, the latter castaneous, with a broad margin, a deep channel down the centre and one on each side, leaving several rounded protuberances: elytra ovate, with 4 elevated longitudinal lines on each, and an abbreviated one on each side of the scutellum, with double rows of strong punctures between them; the base is clouded with brown, as well as an indistinct band before the middle and a transverse oval mark towards the apex; there are also a few black spots across the centre.

This, which is not a common species, has never been figured in any work. It occurs in July in Battersea Fields, on damp banks and hedges, also at Leith-hill, Ealing, Dover, in Norfolk, &c.

7. *E. nubilus* Oliv. 3. 38. *pl.* 1. *f.* 2.

April, under stones, on banks, and damp sandy places everywhere.

The Plant is *Ruppia maritima* (Tassel Pond-weed).



ENICOCERUS GIBSONI.

ORDER Coleoptera. FAM. Helophoridae *Leach.*

Type of the Genus, Enicocerus Gibsoni Curt.

ENICOCERUS *Steph.*—Hydræna? *Ahr.*

Antennæ inserted before the eyes, as long as the head, 11?-jointed, basal joint very long and curved, geniculated at the base, 2nd large obovate-truncate, 3rd and 4th very obscure, 5th and 6th minute, the remainder more robust, pubescent, the 7th being oblong, 8th and 9th turbinate, 10th and 11th larger, the former cup-shaped, the latter suborbicular (6).

Labrum exserted, semiorbicular, ciliated with short stout bristles, the anterior margin deeply notched in the middle (1).

Mandibles subtrigonal, horny externally, with an internal membranous margin, the apex bent and acute, with a slender tooth below (2).

Maxillæ terminated by a narrow lobe, with a broader ciliated one on the inside, furnished with 2 or 3 blunt teeth at the apex.

Palpi 4-jointed, basal joint minute, 2nd and 3rd of equal length, the former clavate, the latter subovate, 4th small papillæform (3).

Mentum cup-shaped, the angles slightly lobed. *Labium* large, subtrigonal-truncate, slightly emarginate, with 2 or 3 curved bristles on each side. *Palpi* very obscure (4).

Head elongated, subtrigonal at the base. Eyes lateral and very prominent. Thorax subcordate-truncate, broader than the head. Scutellum none. Elytra much broader than the thorax and oval. Wings twice as long as the elytra, the inferior margin ciliated. Legs rather slender. Tibiæ simple, furnished with small spurs. Tarsi 4-jointed, 3 first joints small, 4th large, clavate. Claws simple (5).

GIBSONI *Smith MSS.*

Black, more or less æneous. *Antennæ* ochreous, fuscous at the apex. *Palpi* piceous. Head and thorax sparingly punctured, the former with two oblique foveæ, meeting at the back part of the head. Thorax with the tips of the anterior angles and the lateral margin towards the posterior angles diaphanous; a strong channel down the centre, six foveolets near the anterior margin and a longitudinal groove forming the anterior lobes, and a large oval and oblique fovea on each side towards the base. Elytra with 10 deep, punctured striæ on each, the alternate interstices slightly elevated. Legs ferruginous. Tarsi tips of tibiæ and thighs black.

In the Author's and other Cabinets.

THE more elongated head and conspicuous notched upper lip, as well as the thorax, which is narrowed behind, and the con-

vex not depressed elytra, will readily distinguish these insects from *Ochthebius*, to which they are very closely allied, and may be easily confounded with them.

The following species were taken by Mr. Gibson of Hebden Bridge, near Halifax, Yorkshire, and transmitted to me by Mr. John Smith of Bury, Lancashire, who informs me that they were found on stones in the bed of the river Hebden; and as only one of them has hitherto been described, I shall subjoin their specific distinctions.

1. *E. viridiæneus* Steph. pl. 15. f. 6.

Cupreous, sometimes greenish. Head and thorax slightly punctured, the latter very convex, with only 2 foveolets, and the basal oblique foveæ are long and narrow, not oval; in other respects like No. 3.

Taken in October.

2. *E. tristis* Gibson MSS.

Very like No. 1. Black, the thorax less punctured, and the anterior foveolet scarcely visible.

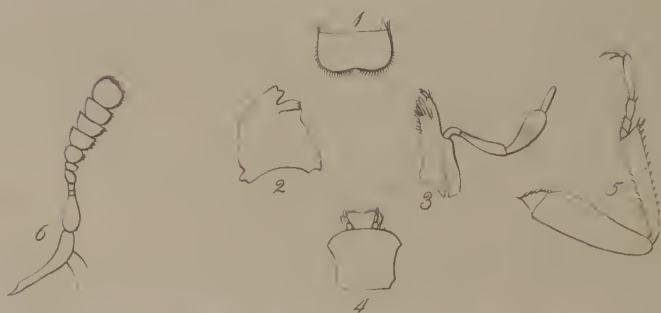
This probably is only a smooth variety of *E. viridiæneus*.

3. *E. Gibsoni* Curtis Brit. Ent. pl. 291.

Thorax more depressed and much more strongly punctured, with 6 anterior foveolets, and the basal foveæ broad and oval.

Ahrens's fig. 7, fascicle 8, is intended probably for one of these insects, although it is named by him *Ochthebius pygmæus*.

With these curious insects Mr. Smith obligingly transmitted specimens of *Conferva fluviatilis*, from the same locality.



Drawn by J. Curtis London Nov. 1. 1814

OCHTHEBIUS HYBERNICUS.

ORDER Coleoptera. FAM. Helophoridae *Leach.*

Type of the Genus Hydrophilus impressus Marsh.

OCHTHEBIUS *Leach., Sam., Gyll., Steph.*—Hydræna *Lat., Ill.*—Elophorus *Fab., Payk.*—Hydrophilus *Marsh.*

Antennæ inserted close to and before the eyes, 11-jointed, basal joint very long, slightly curved, producing 2 bristles, 2nd shorter robust, ovate, 3rd and 4th minute and obscure, 5th and 6th rather small, the latter cup-shaped; the remainder forming a large very pubescent club, the 7th joint being the smallest and orbicular, the 3 following cup-shaped, the terminal one subrotund (6).

Labrum semiorbicular, slightly notched and ciliated (1).

Mandibles short and broad, the apex emarginate, below which is a long tridentate tooth, a portion of the internal margin membranous (2).

Maxillæ short horny and cleft towards the apex, the superior portion armed with small teeth, the inferior composed of broad crowded dentiform spines. *Palpi* scarcely so long as the antennæ and much longer than the maxillæ, 4-jointed, basal joint small, 2nd and 3rd of nearly equal length, the former subclavate, the latter robust, obovate-elongate, 4th slender, linear, much shorter (3).

Mentum large, suborbicular, the sides emarginate, posterior angles truncated. *Palpi* very small, triarticulate, basal joint the stoutest. *Labium* broad and short slightly emarginate and pubescent (4).

Head *lengthened and narrowed anteriorly. Clypeus entire. Eyes small, globose and prominent. Thorax transverse oblong, slightly produced over the Scutellum which is triangular. Elytra rather broader than the thorax, suboval. Wings twice as long as the elytra and almost destitute of nervures. Tibiæ compressed, dilated towards the apex, anterior serrated on the outside. Tarsi 5-jointed, the basal joint very imperfect, 2nd and 3rd short, not so long as the 4th, and the 5th as long as the others united. Claws long, slender and bent (5, a fore leg).*

Obs. *The dissections are from O. hybernicus Nob.*

HYBERNICUS *Nob.*

Dull cupreous, sometimes inclining to black; sparingly covered with long whitish hairs. *Palpi* and antennæ ochreous, rather fuscous at their tips. Head and thorax punctured, the former with 3 foveæ on the crown of the head, one close to the base; the latter with the anterior margin and the posterior angles membranous and transparent; a deep channel between 2 long foveæ on the back and a large depression at each of the angles. Elytra not striated, but covered with large deep punctures, appearing rather regular under a weak lens, but scattered under a high power. Legs ferruginous, the tarsi piceous at their tips.

In the Cabinets of Mr. Haliday and the Author.

OCHTHEBIUS is readily distinguished from *Hydrochus* on the one side, by the slender terminal joint of the maxillary palpi, and from *Hydræna* on the other, by the inferior length of those palpi, which in *Hydræna* are longer than the antennæ. In dissecting this minute insect, the labium and its palpi were slightly injured; and it is necessary to state that the 3rd and 4th joints of the antennæ may be obsolete in some of the species, and were very indistinct in the one dissected.

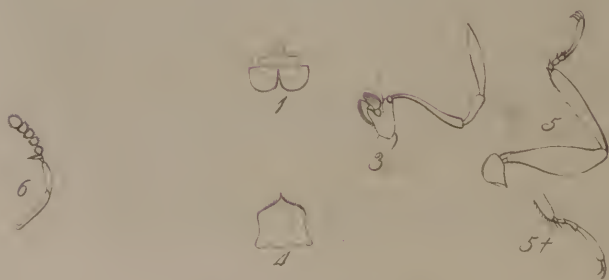
The *Ochthebii* are found in ponds and ditches in April, May, and June, and on the shores of the sea and rivers.

1. *O. æratus* *Step.*—Taken near London.
2. *nanus* *Step.*—Taken in the New Forest by Mr. D. Bydder.
3. *rufimarginatus* *Step.*—Near London.
4. *bicolon* *Kirby MSS.*—*Germ. p.* 92.—Near London and in Scotland?
5. *pygmæus* *Fab., Gyll., Ahr.?* 8. 7.—*riparia* *Ill.*—*impressus* *Marsh.?*—Near London, in Norfolk and Cambridgeshire.
6. *marinus* *Payk., Gyll.*—*margipallens* *Lat.?*—On the shore of the Humber near Hull.
7. *dilatatus* *Leach MSS.*—Near London, in Norfolk, Dorsetshire, Devon, &c. The authentic specimens in the British Museum have a subdiaphanous spot on each side the thorax, at the posterior angles, as in *O. hybernicus*.
8. *hybernicus* *Curtis Brit. Ent. pl.* 250.

For specimens of this fine species I am indebted to A. H. Haliday, Esq. who took them the end of last March upon rushes on the shore of the Bay of Belfast after the tide had retired. From all the foregoing species it is distinguished by the irregular punctation of the elytra, &c. and from the following by its inferior size, the remarkable somewhat diaphanous spots at the posterior angles of the thorax, and by the long white hairs which are scattered over the insect.

9. *O. punctatus* *Step.*

The plant is *Lysimachia vulgaris* (Yellow Loosestrife.)



Phyllotreta (see 186)

HYDRÆNA TESTACEA.

ORDER Coleoptera. FAM. Helophoridae *Leach.*

Type of the Genus, Hydræna riparia Kug.

HYDRÆNA Kug., *Germ.*, *Sam.*, *Steph.*—Elophorus *Gyll.*—Hydrophilus *Mar.*

Antennæ inserted close to and before the eyes, not longer than the head and concealed beneath it, curved, 8-jointed, basal joint very long, 2nd not so long, 3rd short, very much and acutely produced on the inside, the remainder more robust submoniliform and pubescent, the terminal joint the largest (6).

Labrum horny large transverse and bilobed (1).

Mandibles undiscovered.

Maxillæ small, furnished at the apex with an articulated ovate lobe and a ciliated one internally. *Palpi* as long as the thorax, 4-jointed, basal joint minute, 2nd very long bent and clavate, 3rd very much shorter, subclavate, 4th twice as long, more robust and fusiform (3).

Mentum rather large and subquadrate, dilated at the base, the anterior margin angulated ciliated and acuminate in the centre (4). *Labium* and *Palpi* undiscovered.

Head oblong dilated at the base where the Eyes are situated, touching the Thorax which is subquadrate, the sides being slightly convex and angulated. Scutellum minute. Elytra broader than the thorax more or less oval. Wings twice as long as the body and ciliated. Thighs incrassated at the middle. Tibiæ simple. Tarsi rather long, 4 anterior 5-jointed, 1st and 2nd joints very short, 3rd and 4th a little longer, 5th very long (5); posterior pair 4-jointed, basal joint obscure, 2nd short, 3rd long, 4th very long (5 †). Claws bent and acute.

TESTACEA *Curtis's Guide*, Genus 108. 3.

Pale dirty ochreous, not shining. Head black, deeply and thickly punctured especially on the crown. Thorax brown, anterior and posterior margins ochreous, an impression down each side the whole surface variolous. Elytra much broader than the thorax and ovate, each having about 11 lines of large and deep punctures leaving a mere line of surface between them. Antennæ, palpi and legs pale ochreous.

In the Cabinets of Mr. Dale, Mr. Walker, and the Author.

Most of the Water-beetles are remarkable for having long external palpi, but in none is this character so striking as in the little insects before us, in which they are triple the length of the antennæ.

Having been so fortunate as to double the number of British species within the last twelve months, and 3 only of them being described in the works of this country, I shall subjoin their characters.

1. *H. riparia* Kug.—*longipalpis* Mars.—*Ahr.* 8. 6.—*minus* Fab. ?—*Gyll.*—*Kugellani* Leach.

Larger than *H. testacea*; dull black, head and thorax coarsely punctured; elytra dull castaneous, each having about 15 regular lines of distinct punctures; palpi and antennæ bright ochre.

May: ponds, Hampstead-heath; Parley-heath, Hants; Glanville's Wootton, and near Halifax.

2. *H. pusilla* Step. *pl.* 14. *f.* 3.—*nigrita*? *Germ.* *p.* 93.

Similar to No. 1, but shorter and proportionably broader; entirely of a shining blueish black, excepting the antennæ, palpi, and legs, which are pale ferruginous.

Taken by Mr. Gibson in the river Hebden near Halifax, near Carlisle, in Devon, &c.

3. *H. elongata* Curtis MSS.

As long as No. 1, but narrower; dull black, crown of head and thorax coarsely punctured; elytra shining piceous inclining to castaneous, the suture rather keeled, 6 rows of very strong punctures on each, and 3 or 4 less distinct next the exterior margin; palpi ochreous; legs blackish castaneous, the knees and tarsi ochreous.

Taken by Mr. Gibson in the bed of the river Hebden, and communicated by Mr. E. Hobson.

4. *H. testacea* Curtis *Brit. Ent. pl.* 307.

Specimens of this very distinct species were presented to me by Mr. F. Walker, who took them near Southgate; and Mr. Dale has found it early in the spring in a pond at Glanville's Wootton, Dorset.

5. *H. pulchella* *Germ. Ins. Spec. v.* 1. *p.* 94. *n.* 161.

Half as large as No. 4, narrow and very glossy, blackish-castaneous; head black, sparingly punctured; thorax narrowest at the base, with a channel down each side, strongly but sparingly punctured, black, the anterior and posterior margins castaneous; elytra subcastaneous, with about 9 lines of deep and large punctures on each, faintest towards the suture and apex; palpi and legs pale ferruginous.

I took a specimen last May in Dorsetshire, I believe near Glanville's Wootton.

6. *H. rufipes* Curtis's *Guide, Genus* 108. *n.* 5.—Very small, black, with reddish legs.

Taken by Mr. Haliday, the beginning of May, under a stone in a rivulet at Woodside, Cheshire.

7. *H. minutissima* Step. 2. 118.—*Gyll.* ? *v.* 1. *p.* 136. *n.* 12.—Very minute. Ovale, piceous black; thorax channeled in the middle behind; elytra smooth, and palest at the apex; antennæ and legs pale.—*Gyll.*

The plant is *Hydrocharis Morsus-ranæ* (Common Frog-bit).



Ranunculus lingua L. H. 23 Aug

SPERCHEUS EMARGINATUS.

ORDER Coleoptera. FAM. Hydrophilidæ.

*Type of the Genus, Spercheus emarginatus Fab.*SPERCHEUS *Fab., Lat., Gyll., Sam., Curt.*—Hydrophilus *Ill., Mars., Fab.*

Antennæ inserted beneath the clypeus, close to the eyes, very short and capitate, 6-jointed, basal joint the longest, elongate obovate, smooth, producing a few hairs near the apex, the remainder very hairy, the 2nd being the largest and subglobose, 3rd saucer-shaped, 4th and 5th cup-shaped, 6th ovate (6).

Labrum short transverse, the sides rounded, margin slightly concave and densely ciliated (1).

Mandibles subtrigonal, dilated and rounded externally towards the apex which is curved and bifid with a thin coriaceous lobe below, densely pubescent (2).

Maxillæ with a large internal lobe truncated and ciliated with long bristles at the top, the internal angle produced and minutely denticulated, external lobe long, curved and subulate, distinctly articulated near the base, the apex and internal margin ciliated with long bristles. *Palpi* long naked and 4-jointed, basal joint minute, 2nd and 3rd long of equal length, clavate, 4th much longer stouter and clavate (3).

Mentum very large transverse oblong. *Lip* short and very broad, horny excepting a small portion in the middle, concave in front and ciliated with long close hairs, a detached lobe at each extremity from which rise the *Palpi*, they are triarticulate, the basal joint short, 2nd obovate and pilose, 3rd the longest, elliptic-conical (4).

Head broad, the sides margined and slightly reflected anteriorly forming a deep notch in the centre and concealing the trophi. Eyes small and remote. Thorax broad and short the sides margined. Scutellum elongate-trigonal. Sternum simple. Elytra hemispherical, truncated at the base, much larger than the abdomen. Wings ample. Legs compressed, very similar, formed for walking. Tibiæ simple very much compressed. Tarsi not very long, 5-jointed, 4 first joints very short, 5th very long and clavate. Claws bent strong and acute. Pulvilli horny (5, a fore leg).

EMARGINATUS *Fab. Ent. Syst. v.1. pars 1. p. 183. n. 7.*—Curtis's Guide, Gen. 110. 1.—sordidus *Marsh. p. 403. 5.*—verrucosus *Marsh. 404. 6. var.*

In the Author's and other Cabinets.

ALTHOUGH this insect bears a strong resemblance to the Hydrophilidæ, it is by no means easy to ascertain its exact affi-

nities; the long and remarkable external lobe of the maxillæ somewhat resembles that of *Gyrinus* (*pl.* 79.), next to which Latreille arranged *Spercheus* in his *Genera Crustaceorum*; but he has since made it follow *Georissus*, a genus nearly allied to *Elmis*, but having fewer joints in the antennæ. The economy and habits of *Spercheus* are very similar to those of *Helophorus*, and it will probably be found to connect the *Hydrophilidæ* with the *Helophoridæ*. The remote labial palpi and the feet (all formed for walking, and the tibiæ without spurs at the apex,) assimilate it with the latter group, and show that it is not so nearly related to *Berosus* as would be imagined at first sight.

Dr. Horsfield brought from Java a small species described by Mr. W. S. MacLeay in his *Annulosa Javanica*, under the name of '*platycephalus*', the only one that has been discovered, excepting our European species.

S. emarginatus, *Fab.*—*Curt. Brit. Ent. pl.* 394.

Dull piceous covered with coarse shallow punctures; palpi ochraceous: base of antennæ, margins of the clypeus and thorax, especially the sides of the latter, ferruginous: elytra lurid, with numerous longitudinal rows of punctures, sometimes leaving three or more slightly elevated lines towards the external margin; on each side the suture is a piceous line with 3 or 4 irregular spots issuing from it of the same colour; also fuscous marks on the disc. Legs brown and ochre; tarsi somewhat ferruginous tipped with black.

This insect delights in muddy ditches and stagnant waters, and is now very rare in England; it must however have been taken formerly round the metropolis in some abundance, as specimens were preserved in most of the old London cabinets. The elytra have been found on the banks of the Serpentine river in Kensington Gardens; it has also been taken near Windsor, I believe in March, and the end of July a few years since Messrs. Chant and Bentley captured several specimens at the roots of aquatic plants in ditches on Yaxley Fen in Huntingdonshire, since which time it has not been detected.

The Plant is *Ranunculus Lingua* (Great Spearwort).



Drawn by E. J. Leach. Engraved by J. Smith.

HYDRÖUS PICEUS.

ORDER Coleoptera. FAM. Hydrophilidæ Leach, Lat.

Type of the Genus Dytiscus piceus Linn.

HYDRÖUS Linn. MSS., Leach, Sam.—Hydrophilus DeG., Geof., Fab., Oliv., Lat., Marsh., Gyll.—Dytiscus Linn.

Antennæ inserted upon the anterior margin of the eyes at the base of the mandibles, shorter than the head, naked, 9-jointed; basal joint large, bent, slender at its base; 2nd and 3 following slender and cylindric, the 2nd being oblong, the others transverse; the 6th and following forming a perfoliated coriaceous club, the 6th joint being somewhat cup-shaped, the 7th and 8th transverse lunate, produced above, the 9th subtrigonal (6).

Labrum exerted, naked, very broad and short, being transverse-oval (1).

Mandibles large, bent, acute, notched near the apex, with 3 strong emarginate teeth on the inside, pubescent at their base (2).

Maxillæ short terminated by an inflexed and dilated articulate lobe, ciliated with rigid bristles, 2 smaller lobes on the inside, the upper one producing 2 strong curved bristles, the lower one ciliated and pubescent. *Palpi* very long and drooping, 4-jointed, basal joint small, 2nd very long, subclavate, 3rd rather shorter and slenderer, 4th much shorter elongate-ovate (3).

Mentum transverse semi-octagonal. *Labium* thick and rigid, formed of 2 lobes uniting in the centre and pubescent at their margin. *Palpi* short, rising from 2 short fixed scapes, triarticulate, basal joint small, 2nd long robust subclavate, 3rd shorter slender subfusiform (4).

Clypeus entire. Head *obtuse.* Eyes *remote globose.* Thorax *transverse trigonal emarginate before.* Postpectus *keeled, terminated in a spine at the extremity of the metasternum and extending beyond the coræ.* Scutellum *large, triangular.* Elytra *broad, convex somewhat attenuated to the apex.* Wings *ample.* Legs, *anterior the shortest, posterior the longest.* Tibiæ *armed with very long spurs.* Tarsi *all 5-jointed, 4 first joints very short in the anterior pair, the 5th long, dilated and triangular in the male, producing 2 simple but unequal* Claws: *four posterior Tarsi formed for swimming, compressed, ciliated internally, basal joint short oblique, 2nd long. Claws hooked and bifid, with a strong bristle between them (5, fore leg of female).*

Larvæ inhabiting the water.

PICEUS Linn. Faun. Suec. p. 214. n. 764.

Male. Piceous, smooth, shining. *Antennæ* and *palpi* ferruginous. Elytra with the margin reflecting green and crimson, each with 4 punctured lines between 2 faint striæ, increasing in depth to the apex. Tarsi inclining to castaneous, ciliated with ferruginous hairs. *Female* more glossy and olivaceous.

In the Author's and other Cabinets.

THIS fine insect, the largest of our water-beetles, has remarkably strong and curiously denticulated mandibles (not unlike the under jaw of some Mammalia): its entire labrum, short 2nd joint of the antennæ, bifid claws (not recurved at the base), and the attenuated elytra, are also very different from those of *Hydrophilus caraboides*, to which it is most nearly related; and the singular structure of the male anterior feet is confined to our insect.

The larva of *Hydrous* is a soft disgusting animal, living apparently amongst the mud in ditches: it is full-grown in July, when it leaves the water and forms a cell under dung or in the earth, where it becomes a pupa. The female beetles of this family, like spiders, deposit their eggs in a web. "In form," says Mr. Kirby, speaking of the egg-pouch of *H. piceus*, "it somewhat resembles a turnip when reversed, the greater diameter of which is $\frac{3}{4}$ ths of an inch." "At its base is the opening prepared for the egress of the larvæ when hatched, which is closed by some threads, that, by means of the air confined in the cocoon or pouch, hinder the water from getting in. This nidus does not float at liberty in the water till after the eggs are hatched, the parent animal always attaching it to some plant. By means of this anomalous process for a beetle, which this insect is instructed by Providence thus to perfect, the precious contents of its little ark are secured from the action of the elements which is to be the theatre of their first state of existence, from the voracity of fishes, or the more rapacious larvæ of its own tribe, until the included eggs are hatched and emerge from their curious cradle." Figures 12 to 16 in Lesser's *Lyonnet* represent *H. piceus* in its different stages.

The perfect insects appear to be more abundant in the neighbourhood of London than in the country, and may be found during the whole year under weeds, &c. in ponds and ditches. I have taken the larvæ at Whittlesea Mere, and the beetles near Norwich; and for very fine specimens I am indebted to Mr. John Atkinson, of Grove-end, who took them near the Regent's Park.

The plant is *Poa* (*Triodia* Brown) *decumbens* (Decumbent Meadow-grass).

HYDROPHILUS CARABOIDES.

ORDER Coleoptera. FAM. Hydrophilidæ Leach., Lat.

Type of the Genus Dytiscus caraboides Linn.

HYDROPHILUS Geoff., Fab., Lat., Leach.—Dytiscus Linn.

Antennæ inserted at the base of the mandibles, close to the eyes, under the clypeus; shorter than the head, naked, 9-jointed, basal joint robust bent, 2nd slender as long as the 3 following united, which are subquadrate, the remainder forming a perfoliate, velvety club, the 1st joint the smallest, 2nd and 3rd transverse, 4th ovate, truncated obliquely (fig. 6).

Labrum very short and broad, naked, emarginate (1).

Mandibles rather large, bent acute and bifid at the apex, internal edge thin and ciliated (2).

Maxillæ small, producing 2 lobes, external one large, composed of 2 joints the 2nd membranous and ciliated with strong hairs at the apex; internal lobe cleft, the superior portion minute ciliated, and terminated by a rigid bristle, the inferior lobe producing strong bristles at the apex, and ciliated on the margin.

Palpi very long, naked, 4-jointed, basal joint minute, 2nd long robust clavate, 3rd not so long, 4th shorter subfusiform, slightly bent (3).

Mentum transverse quadrate, sinuated at the anterior angles.

Lip broad bilobed, ciliated, coriaceous in the disk, sides membranous. *Palpi* remote, attached to the membranous sides of the lip, short, 3-jointed, basal joint minute, 2nd clavate, 3rd bent, subfusiform (4).

Clypeus large entire, covering the mouth. *Eyes* remote prominent, reniform. *Thorax* keeled beneath, terminated in a spine at the extremity of the poststernum not extending beyond the trochanters. *Scutellum* triangular. *Coleoptra* ovate very convex. *Wings* ample, formed for flying. *Legs* rather long. *Tibiæ* furnished with strong spurs at their apex. *Tarsi* simple, alike in both sexes, anterior the slenderest (5); 4 posterior longer, compressed, producing hair down the sides for swimming; 5-jointed, basal joint nearly obsolete (5†a), 3 following short in the anterior pair, the 2nd longer than the terminal one in the posterior. *Claws* very much bent, dentate at their base.

CARABOIDES Linn. Syst. Nat. 2. 664. 2.—Faun. Suec. 765.—Marsh. 402. 2.

Black shining, minutely but not deeply punctured. Head and thorax with a few large punctures on their sides, the former with an impression close to the eye, the latter with 2 in the disk. Elytra irregularly punctured on the outer margin, each having 4 irregularly-punctured striæ. Beneath dull, pubescent. Antennæ and palpi ferruginous, the club of the former black. Tibiæ and tarsi castaneous black, the hair upon the latter ferruginous.

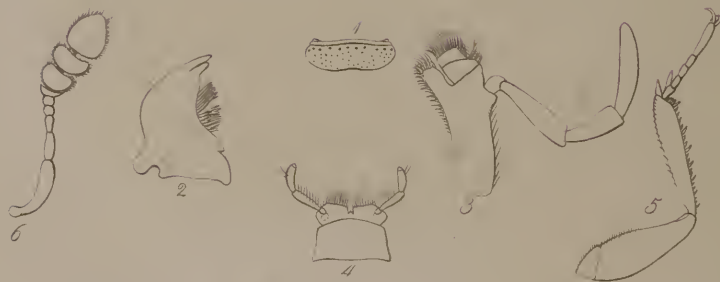
In the Author's and other Cabinets.

THE *Hydrophili*, as the name implies, delight in the water:—
“ They may be seen (says the author of the *Elements of Natural History*) in ponds during the summer, frequently rising to the surface for fresh air; they swim well, and when laid on their back restore themselves by whirling round; they rest in the shade, keep in water during the day, come abroad in the evening, and are sometimes found sitting on the plants by the edge; they fly by night; after having been long out of the water they cannot dive but with difficulty.”—Latreille observes, that the *Hydrophili* when in the water conceal their antennæ under the sides of the head, and advance the palpi; but when they are taken out of that element, they develop those organs, from which it appears that the antennæ are of little use to them when immersed. The larvæ, which reside also in the water, are carnivorous: the perfect insects are said to feed principally upon aquatic plants.

The genus *Hydrophilus* is distinguished from *Hydrous* by the simple tarsi of the males, and from *Hydrobius* of Leach by the acuminate sternum.

The species figured, the only one known to inhabit our island, is exceedingly abundant in the ponds and ditches round London, where it may be found from January to June, and longer probably, living through the winter: in some parts of the country it is less plentiful.—We are indebted to Mr. Chant for the sight of a specimen taken in August at Islington, which at first appeared to be a new species, being of a dull brown colour with ochraceous legs; but after a careful examination we think these differences arise from its being an immature specimen.

The plant is *Poa fluitans* (Flote Meadow-Grass).



Drawn by J. Currier, Jan. 1866

HYDROBIUS CHALCONOTUS.

ORDER Coleoptera. FAM. Hydrophilidæ *Leach, Lat.*

Type of the Genus Dytiscus fuscipes Linn.

HYDROBIUS *Leach., Sam.*—Hydrophilus *Lat., Fab., Marsh., Gyll., Germ.*—Dytiscus *Linn.*

Antennæ inserted before the eyes at the base of the mandibles, not so long as the head, 9-jointed, basal joint long, curved, subclavate, 2nd much shorter elongate-ovate, 3rd slender and short, but longer than the 4th and 5th which are transverse, 6th considerably broader, somewhat boat-shaped, forming a cup to receive the perfoliated and pubescent club, the 2 first joints of which are transverse kidney-shaped, the terminal one the largest subovate (6).

Labrum transverse, punctured, with a line of deep impressions at the base, sides rounded, anterior edge slightly emarginate (1).

Mandibles subtrigonal, bent and bifid at the apex; internal side densely ciliated with strong hairs (2).

Maxillæ rather long, terminated by an articulated lobe, ciliated with long bent bristles, a narrower lobe on the inside, ciliated also and having several short spines at the apex. *Palpi* long, naked, 4-jointed, basal joint small, 2nd and 4th long, of equal length, the latter convex on the outside, rounded at the apex, 3rd shorter, narrowed at the base (3).

Mentum large, transverse-oblong, slightly narrowed before, the margin convex. *Lip* short and broad, narrowed at the base, anterior margin producing long silky hairs, slightly concave, angles truncated, notched in the middle, with a small tooth. *Palpi* remote, slightly hairy, triarticulate, basal joint minute, 2nd long, broadest at the apex, 3rd shorter, external side convex (4).

Oval or globose. *Clypeus* entire. *Eyes* simple, remote. *Thorax* subconic, truncated anteriorly. *Postpectus* simple. *Scutellum* distinct. *Elytra* rounded at the apex. *Wings* ample. *Legs* alike in both sexes. *Tibiæ* spurred, anterior producing short spines externally. *Tarsi* 5-jointed, 4 first joints short, of equal size in the anterior pair, 5th long. *Claws* simple (5, a fore leg).

CHALCONOTUS *Sam. Ent. Comp. p. 368.*

Piceous black, with a green and crimson cast (especially when alive), minutely, thickly and beautifully punctured; elytra with 10 finely punctured striæ on each, strongest towards the apex, the spaces between the 2nd and 3rd, 4th and 5th, 6th and 7th, and 8th and 9th, with an irregular row of stronger punctures; beneath dull black; antennæ, palpi, and legs castaneous, the club of the former fuscous, the thighs and tibiæ very dark.

In the Author's and other Cabinets.

SOME species of this genus are oval, and others nearly globose; the trophi also vary considerably, but the simple postpectus or sternum will distinguish the *Hydrobii* from *Hydrophilus*. They live in ditches, ponds, and stagnant waters, and are most abundant in April and May; but many, if not all of them, may be found during the whole year. The following are British species arranged according to their affinities.

1. *H. fuscipes* Linn.—*aquaticus* Linn.—*Scarabæoides* Fab., Panz. 67. 12.—Common everywhere.
2. *chalconotus* Sam.—*Curtis Brit. Ent. pl.* 243.—Taken the middle of April in a pond near Lynn, Norfolk, by Mr. Davis, who presented me with specimens; for others I am indebted to Mr. Stone, who took them in a pond of brackish water at Gravesend the end of August.
3. *substriatus* Marsh. MSS.—This is probably only a dull pitchy variety of the last, and may be the *H. picipes* Fab.
4. *melanocephalus* Fab., Oliv. 3. tab. 2. f. 12. a. b.—*H. torquatus*, *dermestoides*, and *ochropterus* Marsh. are varieties.
5. *bicolor* Payk., Gyll.—*lividus* Lat.—*fulvus* Marsh.
6. *griseus* Ill., Fab.—*bicolor* Fab.—*chrysomelinus* Fab., Panz. 67. 15.—*lividus* Herb., Marsh., Oliv.
7. *margipallens*? Marsh.
8. *marginellus* Fab.—*affinis* Payk., Gyll.
9. *globulus* Payk., Gyll.—*minutus* Oliv. 3. tab. 2. f. 13.
10. *foveolatus* Haw. *Ent. Trans.* p. 86.—June, near London.
11. *bipustulatus* Marsh. 406. 13.
12. Colon. From Mr. Blunt's cabinet.
13. *minutus* Linn., Gyll.—*bipunctatus* Fab., Oliv., Panz. 67. 14.—Marsh.
14. *orbicularis* Fab., Oliv., Panz. 67. 13.
15. *æneus* Stev., Germ.—I have two specimens taken in or near the New Forest, Hants.
16. *Seminulum* Payk., Gyll.—*nigrinus* Marsh.

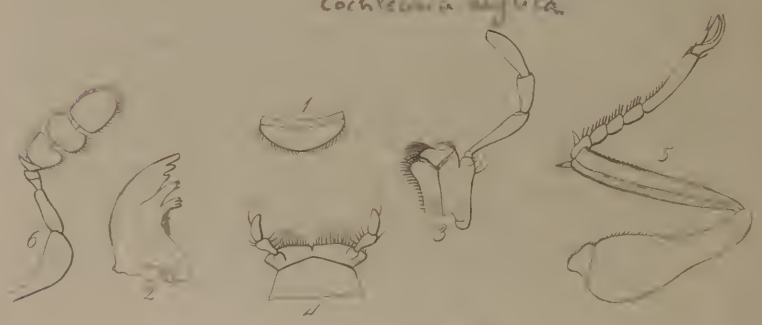
I must not omit to observe, that Mr. A. Mathews detected several individuals of *H. griseus* carrying egg-pouches under their abdomens.

The plant is *Inula crithmoides* (Samphire-leaved Fleabane), communicated by Mr. Gray, who found it in the Isle of Wight. I gathered it this year on the coast of Essex.



II 112

Cochlecinia mylica



BEROSUS ÆRICEPS.

ORDER Coleoptera. FAM. Hydrophilidæ Leach, Lat.

Type of the Genus *Dytiscus luridus* Linn.

BEROSUS Leach, Sam.—Hydrophilus DeG., Fab., Oliv., Lat., Gyll., Marsh.—*Dytiscus* Linn.

Antennæ inserted close to the eyes at the base of the mandibles, 8-jointed, basal joint long, robust, slightly bent, subclavate, 2nd shorter, slightly attenuated, 3rd and 4th small, somewhat obtri-gonate, 5th cup-shaped, the remainder forming a perfoliated pi-lose club, the 6th and 7th joints equal somewhat bowl-shaped, the terminal one large subglobose (6).

Labrum transverse, anterior margin semi-oval and ciliated (1).

Mandibles subtrigonal, bent, tridentate at the apex, producing 2 broad lobes on the inside, each being tridentate at the apex, the lower one ciliated at the base (2).

Maxillæ small, producing a broad rounded lobe on the inside and an inflexed one at the apex, both ciliated with coarse hairs. *Palpi* very long, 4-jointed, basal joint minute, 2nd long, clavate, 3rd shorter, narrowed at the base, 4th nearly as long as the 2nd, subfusiform-truncate (3).

Mentum transverse, broadest at the base, the anterior margin forming an obtuse angle. *Lip* very broad and short, sides an-gulated, anterior margin curved and ciliated, slightly notched in the centre. *Palpi* very remote short and triarticulate, basal joint minute, 2nd and 3rd of equal length, the former obovate-trun-cate, the latter subovate, producing a bristle externally (4).

Head bent down. Eyes globose, rather prominent. Thorax convex broader than the head. Scutellum small. Elytra globose, considerably broader than the thorax. Wings very ample. Anterior feet the shortest. Thighs very much dilated at the base. Tibiæ spurred. Tarsi 5-jointed; 1st joint obsolete, 2nd large, and 3rd slightly di-lated in the males; 4 basal joints short of equal size in the females, ciliated beneath with bristles, 5th very long. Four Posterior legs natatorious, the Tarsi long attenuated, ciliated, 5-jointed, basal joint small obscure, 2nd the longest. Claws slightly denticulated at the base, with a membranous slender Pulvillus furcate at the apex (5, fore leg of *B. æriceps* fem. from which all the dissections were taken).

ÆRICEPS Spence MSS.—*luridus* Oliv. No. 39. pl. 1. fig. 3. c, f.

Ovate, shining, dull ochreous. Head and thorax thickly and finely punctured, the former green with a cupreous tinge, the latter with a small oval greenish black spot on the back, divided longitudinally by a ferruginous line. Scutellum black. Elytra with a few hairs beyond the middle, having 11 crenated striæ on each, the 2nd from the suture abbreviated, the surface punctured, the spaces between the 3rd and 4th, 5th and 6th, and 7th and 8th striæ being the strongest; each elytron has also 6 rather obscure black spots, one towards the base, the next nearer the suture, the others beyond the middle. Underside dull blackish; Legs ochraceous, the 4 posterior coxæ fuscous.

In the Author's and other Cabinets.

I possess three species of the genus *Berosus*, all of which appear to have been confounded by Continental writers under the name of *Hydrophilus luridus*, unless the *H. signaticollis* of Megerle be intended for one of them. The insect figured, however, was many years since distinguished and named by my friend Mr. Spence, whose Monograph upon the Cholevæ, as well as his share in the labours of the "Introduction to Entomology," bear ample testimony to his talent as a Naturalist, and have rendered his name familiar to every student in Entomology.

I cannot perhaps do better than proceed to give the characters of the species: all of them are inhabitants of ponds and stagnant water, and are found from February to November, and probably the rest of the year.

1. *B. æriceps* Spence.—*Curt. Brit. Ent. pl.* 240.

This insect is rather rare in Norfolk, and is found occasionally in the neighbourhood of London.

2. *B. luridus* Linn. *Faun. Suec. n.* 767.—*Oliv. No.* 39. *pl.* 1.
fig. a, b.—Panzer's figure (7. 3.) of *H. luridus*, if correctly coloured, is another species.

Similar to the last, but only half the size. Head more brilliant in colour. Thorax with the spot considerably broader, but suddenly narrowed anteriorly and not divided down the middle. Elytra with the spaces uniformly punctured, not alternately stronger, a black spot near the middle close to the suture, and three beyond the middle extending across rather obliquely. Tips of the tibiæ and tarsi fuscous.

This is a common insect in Norfolk and round London.

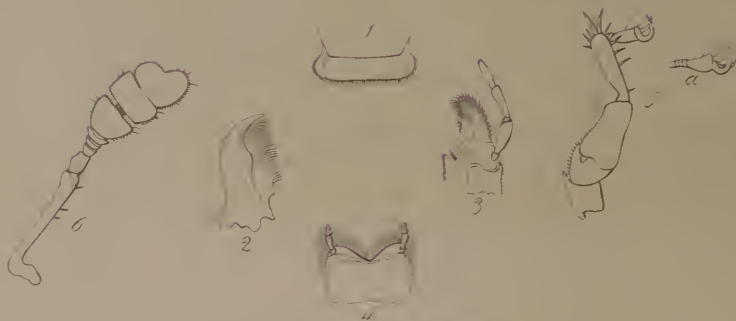
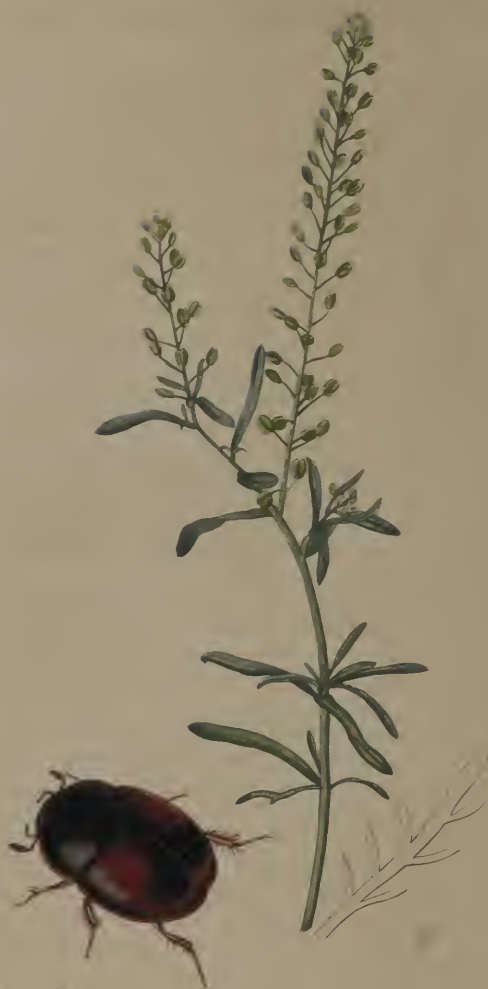
3. *B. globosus* Nob.

Like the last in size, but more obtuse and globose; ferruginous-ochre, shining, the head and thorax more deeply punctured, the latter with a short smooth elevated ferruginous line in the centre, the crenated striæ on the elytra are very deep and black, the spots disposed as in *B. luridus*. Legs ferruginous, four posterior coxæ blackish, but not the tips of the tibiæ and tarsi.

This new species I obtained from the late Mr. Blunt's cabinet, but am not able to say whether it was taken in Essex or at Whittlesea Mere.

The plant is *Cochlearia anglica* (English Scurvy-grass).

Caucifera G. & A. *Flora p.* 36 "how often found?"



SPHÆRIDIDIUM QUADRIMACULATUM.

ORDER Coleoptera.

FAM. Sphæridiidae.

Type of the Genus, Dermestes scarabæoides Linn.

SPHÆRIDIDIUM *Fab., Oliv., Gyll., Curt.*—*Dermestes Linn., Mars.*

Antennæ inserted under the margin of the head, at the base of the mandibles, short clavate and 8-jointed, basal joint long, incrassated at both ends, and bent at the base, 2nd subovate, 3rd very small cup-shaped, 4th and 5th very short and saucer-shaped, the latter the largest, the remainder forming a large velvety club, the 6th joint somewhat cup-shaped, 7th transverse, 8th similar in shape at the base, with the apex produced on one side, rounded and excavated (6).

Labrum short, very broad and densely ciliated (1).

Mandibles curved and acute at the apex, with a densely ciliated membranous margin on the inside (2).

Maxillæ terminated by a bifid pubescent lobe, with another ciliated one lower down on the inside, having a pencil of hairs above it. *Palpi* longer than the maxillæ and 4-jointed, basal joint minute, 2nd stout and a little longer than the 3rd, which is clavate, 4th shorter fusiform-truncate (3).

Mentum transverse subquadrate, anterior margin transparent, the angles rounded. *Palpi* attached to short scapes beneath the anterior margin of the mentum, short and triarticulate, basal joint minute, 2nd elongate subovate, hairy at the apex, 3rd slender and oval. *Lip* short, gradually but rather deeply notched in the centre, the margin ciliated with long hairs (4).

Head nearly orbicular: eyes small lateral and placed near the base, frequently immersed. Thorax hemispherical, concave before, convex at the base; sternum forming a spine behind: scutellum elongate-trigonal. Elytra subovate, truncated at the base: wings ample. Legs rather short: thighs elongate-ovate and compressed: tibiæ armed with stout spines, and furnished with strong spurs at the apex: tarsi nearly as long as the tibiæ, slender and simple in the female, 5-jointed, anterior pair with the first 4 joints very short in the male, 5th large and dilated towards the apex, terminated by a strong hooked claw, and a smaller one with a horny dilated appendage between them (5, a fore leg, a, the tarsus detached to show the joints), in the other tarsi the basal joint is the longest, the 2nd 3rd and 4th being very short, and the terminal one long and clavate.

QUADRIMACULATUM *Mars. var.*—*Curt. Guide, Gen. 116. 3.*

In the Author's and other Cabinets.

THE Sphæridiæ are not only similar in appearance to the Hydrophilidæ, but are so closely allied in structure, that nothing can be more natural than their association in a linear arrangement: in the form of the antennæ, the trophi, and

even of the anterior tarsi in the males, this will appear evident on comparing plates 239, 159, and 243 of this work with the one before us.

The colours of *Sphæridium* are much more brilliant when alive. They all inhabit the dung of cows from the first warm days of spring to the end of summer, running very actively, and concealing themselves in the burrows formed by Coprophagous insects.

It is very doubtful, I think, whether many of our species be more than varieties :

1. *S. scarabæoides* Linn.—Don. 7. 231. 4. Sturm. D. F. tab. 21.

“Ovate black smooth, elytra with 2 obscure ferruginous spots.” Linn. F. S. No. 428.

The species described under this name by Marsham has an ochreous edge to the thorax, from which circumstance Gyllenhal thinks it may be a distinct species.

2. *bipustulatum* Fab.—Oliv. 2. No. 15. t. 2. f. 11.

“Black shining, elytra with 2 red spots at the apex, legs piceous.” Fab. E. S. 1. 78. 3.

5. *lunatum* Fab.? “Ovate black, elytra with a lunate yellowish spot at the apex : legs black.” Fab. E. S. 78. 2.

3. *4-maculatum* Mars. 66. 15. Curt. B. E. 518. ♀ var.

Shining black, thickly and minutely punctured, thorax with the lateral margins ochreous; elytra with a deep channel on both sides the suture, and 7 or 8 indistinct lines of punctures on each, a large bright castaneous spot between the base and middle on each side, the outer margin edged with ochre, and a lunulate ferruginous-ochre mark at the apex of each : legs ochreous, with the spines and tarsi subcastaneous, and a piceous spot on the outside of each thigh near the centre. Obs. The typical specimens have a red spot on the suture towards the apex.

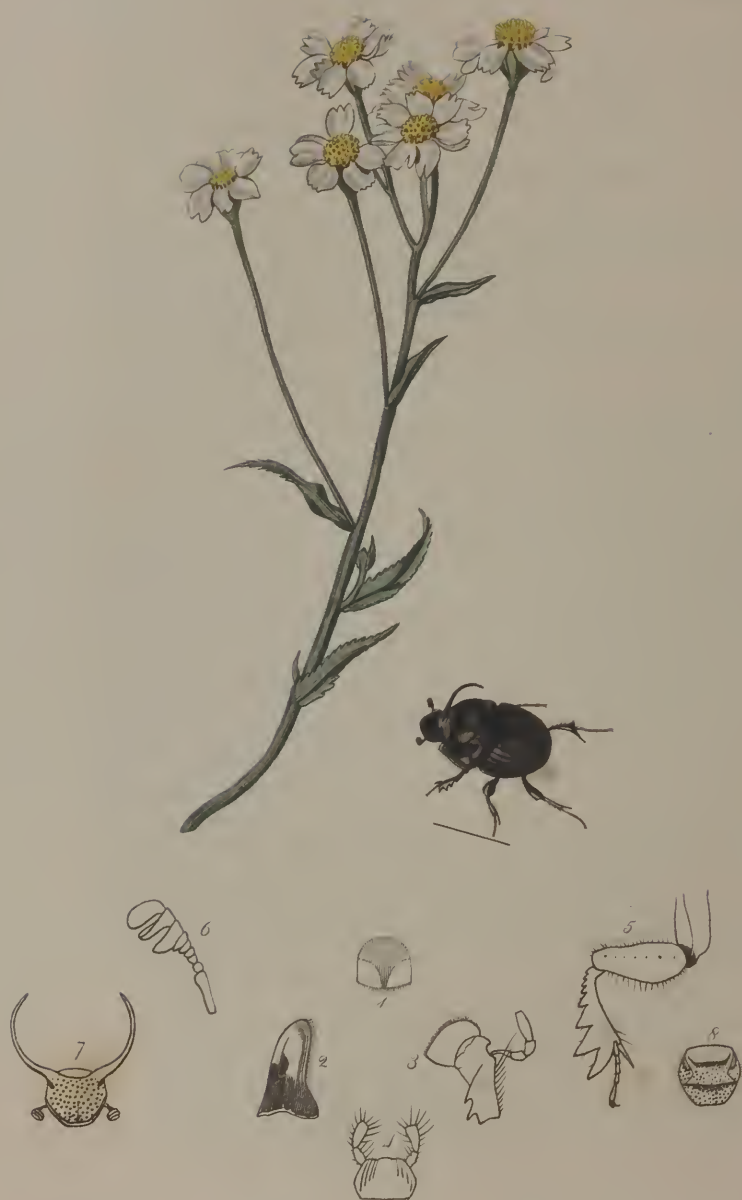
I am inclined to agree with Gyllenhal in believing that *S. 4-maculatum* and *marginatum* are one species, for I have a variety of the latter with the apex of the elytra ochreous as in the specimen figured, wanting only the red spots.

6. *marginatum* Fab.—Oliv. 2. No. 15. t. 1. f. 3. “Smooth black, margin of elytra and legs ferruginous.” Fab. E. S. 80. 11.

4. *lunulatum* Kirb., probably a small var. of the last.

7. *Daltoni* Steph. A small species without any pale margin to the thorax, and possibly a var. of *S. lunatum*.

The Plant is *Lepidium ruderale* (Narrow-leaved Pepperwort).



Drawn by C. Curtis London January 1 182.

ONTHOPHAGUS TAURUS.

ORDER Coleoptera. FAM. Coprophagi *Lat.* Copridæ *Leach.*

Type of the Genus Scarabæus nuchicornis *Linn.*

ONTHOPHAGUS *Lat.* Scarabæus *Linn., Fab.* Copris *Fab.*

Antennæ inserted under the clypeus between the eyes and the base of the maxillæ, 9-jointed, 1st joint long cylindric, 2nd globose, 4 following smooth coriaceous, short, last transverse, to which is closely attached an abrupt lamellated mass of 3 joints, very pubescent. (f. 6.)

Labrum concealed by the clypeus, membranaceous more coriaceous at the base and down the centre, quadrate, ciliated. (1.)

Mandibles elongated rounded, entire, corneous at the base, membranaceous towards the apex, beautifully ciliated on the internal edge. (2.)

Maxillæ crustaceous, terminated by a large membranaceous ciliated lobe : *Palpi* without hairs, 4-jointed, 1st joint slender, 2nd and 3rd short, more robust, 4th attenuated at each end, truncated. (3.)

Mentum quadrangular, narrowed before and behind, hirsute : *Palpi* very hairy, 2-jointed, 1st joint viewed in profile obovate, abruptly produced on the upper side, 2nd joint securiform, obliquely truncated. *Lip* small bilobed concealed by the palpi. (4.)

Head generally furnished with horns in the males. Clypeus large, entire, somewhat semicircular, nearly concealing the eyes. Thorax broad, as long or longer than the elytra, emarginate before, rounded behind. Scutellum none. Wings 2. Posterior feet placed very far behind. Anterior tibiæ the largest, strongly dentated externally, with a spine at the interior angle, 4 posterior tibiæ with 2 spines at their apex. Tarsi 5-jointed, terminated by simple claws (5. a fore leg.)

TAURUS *Linn. Syst. Nat.* 2. 547. 26. *Fab. Ent. Syst. t. 1. pars 1.* p. 54. n. 178.

Male black, glossy, hairy beneath. Clypeus punctured more thickly towards the anterior margin where it curves upward, from the posterior part of the head arise 2 long curved spreading horns, the internal edges of which unite at the base and form a transverse line. (fig. 7.) Thorax sometimes tinged with rosy and green colours, thinly punctured, smooth before, where it is depressed in the centre, with 2 other depressed lateral lines appearing like the impressions of the horns upon the head. Elytra with seven punctured striæ on each, besides the margin ; slightly pubescent towards their apex in perfect specimens. Legs hairy. Tarsi and base of antennæ ferruginous.—*Female* similar to the male excepting the head, which has no horns but a transverse elevated line behind the eyes where the horns arise in the male, and another transverse line just before the centre. (fig. 8.)

In the Cabinet of Mr. Stone.

THIS very natural group, separated from Fabricius's genus *Copris* by Latreille, and named *Onthophagus* from its peculiar habits of life, contains the following British species : 1. *O. Taurus* L.; 2. *Vacca* L.; 3. *Austriacus* Panz.; 4. *Cænobita* F.; 5. *Dillwynii* Leach.; 6. *nuchicornis* L.; 7. *nutans* F.; 8. *ovatus* L. They inhabit the excrement of animals, especially the cow, during the spring and summer, and when the season is warm and favourable so early as April; they are by no means rare, excepting *O. Vacca*, which is found in the meadows about Battersea and in Epping Forest; *O. Dillwynii*, which was taken at Swansea by L. W. Dillwyn, Esq. (in honour of whom it was named by Dr. Leach,); and *O. Taurus*, a male of which was taken by a collector October 1, 1824, by the side of the New Park near Brockenhurst in the New Forest, Hampshire. It is more than probable that any one finding the female of *O. Taurus* in this country, without being aware of its inhabiting Britain, would have taken it for *O. nutans*: the collector who took the specimen figured, was directed by Mr. Stone, to whom it was sent, to search diligently for more, but not another could be found; it was far beyond the period for this genus, as a fine April or May is the right time for them; and there is little doubt that if any one could go to the same spot at that season, he would be rewarded by finding other specimens.

The horns upon the head of the male, which certainly very much resemble those of a bull (as exhibited in the coloured figure), and the front view of the head (fig. 7.) are a very strong feature to distinguish that sex by: the female, having only two elevated transverse lines upon the head (as exhibited at fig. 8.), is rendered far less striking. This last figure was drawn from a specimen in the British Museum: it is by no means an uncommon insect upon the continent. I have a male from Germany; and it is even found so near to us as Paris; but it does not appear to be an inhabitant of the colder regions, as Gyllenhal and other writers upon Northern entomology do not describe it in their works. Pliny, who was acquainted with our insect, compares it to a *Tick*.

The plant figured is *Achillea Ptarmica* (Sneeze Wort Yarrow).



Malva sylvestris L.

COPRIS LUNARIS.

ORDER Coleoptera. FAM. Copridæ.

Type of the Genus, Scarabæus lunaris Linn.

COPRIS Geof., Fab., Lat., Curt.—Scarabæus Linn., Fab., Mars.

Antennæ inserted beneath the clypeus and before the eyes, short small pilose and 9-jointed, basal joint long subclavate, 2nd globose, 3rd obtrigonal, 3 following cup-shaped, the remainder forming a small fleshy lamellate club (6).

Labrum submembranous, somewhat semicircular, the anterior margin emarginate and ciliated, pubescent with stronger short bristles in the middle confined between an oblique line of bristles on each side (1).

Mandibles rather narrow thin and coriaceous, except at the base, where they are dilated thick and horny, the apex rounded pubescent and ciliated on the inside, the outside hairy towards the base (2).

Maxillæ large horny and externally pilose, terminated by a large fleshy semicircular lobe, with a smaller one ciliated on the inside.

Palpi slender, rather long naked and 4-jointed, basal joint short and very slender, 2nd and 3rd a little longer, nearly of equal length, the former subovate, the latter somewhat clavate, 4th rather long and subfusiform (3).

Mentum somewhat ovate, truncated at the base, notched in front, very pilose.

Lip broad and bilobed. *Palpi* scarcely so long as the mentum attached to small scapes on each side, clothed with long bristles, triarticulate, basal joint the longest, 2nd suborbicular, 3rd very slender and not longer than the 2nd (4).

Clypeus semicircular, forming an angle at the eyes, the margin slightly sinuated and notched in the centre, completely concealing the mouth. Head with a horn on the crown: eyes lateral, the greater portion beneath the clypeus. Thorax transverse, semicircular, the front perpendicular and irregular. Scutellum completely concealed. Elytra convex, semi-ovate. Wings very ample. Legs rather short but robust, the middle pair remote at their insertion. Thighs very short subovate. Tibiæ compressed, anterior the broadest, forming 3 or 4 large teeth on the outside, with a strong spine on the internal angle, the others narrow at the base and trigonal at the apex, intermediate pair serrated outside and furnished with 2 spurs, posterior emarginate outside towards the apex and producing one spine. Tarsi 5-jointed, anterior short and very slender, the others with the basal joints dilated, obtrigonal. Claws small and simple (5, a fore leg).

LUNARIS Linn. Faun. Suec. 138. 379.—Curtis's Guide, Gen. 118. 1.

In the Author's and other Cabinets.

THE natural situation of this genus is evidently between Onthophagus and Aphodius, being nearly related to the former in structure, and many exotic species approach the latter in form, being more cylindrical and elongated than *C. lunaris*. The most striking peculiarities in our genus are the great length of the terminal joint of the maxillary, and the slender form of the same joint of the labial palpi; and one of the most remarkable characters which *Copris* has in common with *Onthophagus* is the remoteness of the intermediate trochanters.

Only one species inhabits Britain, which is found as far north as Sweden; this seems to be the only one that has been discovered in cold latitudes, but there are a great many species in the warmer climates both of the old and new world.

C. lunaris Linn.—Curt. Brit. Ent. pl. 414. ♂.—emarginatus Fab. ♀.

Male black shining, underside and legs producing ferruginous hairs: palpi and antennæ castaneous: head thickly punctured, producing a long attenuated perpendicular horn on the crown, slightly curved, with 2 small teeth behind at the base: thorax partially punctured, with a deep channel down the centre, the anterior portion elevated and truncated at right angles, notched in the middle; on each side a deep fovea and a strong triangular tubercle: elytra faintly punctured with 8 furrows on each, very obscurely crenated.

Female with a short horn on the crown of the head, emarginated at the apex; the thorax coarsely punctured before and less elevated, the large foveæ wanting, and the tubercles slightly developed (8 ♀, front view of head and thorax).

The horn on the head of the male is sometimes very short, and the protuberances on the thorax of the female very slight; they vary also greatly in size.

C. lunaris flies towards sunset, when it emerges from holes made in the earth beneath cow-dung, where the eggs are buried, the larvæ nourished and the beetles perfected, as in *Geotrupes* and many other *Scarabæidæ*. It has been taken in April in sandy situations at Charlton, and in lanes at Bexley in Kent; and I have found it at Bungay in Suffolk occasionally in abundance.

The Plant is *Chenopodium olidum* (Stinking Goosefoot).



APHODIUS VILLOSUS.

ORDER Coleoptera. FAM. Aphodiadæ Leach.

Type of the Genus Scarabæus Fossor Linn.

APHODIUS Ill., Fab., Lat., Gyl. Scarabæus Linn.

Antennæ rather short, inserted under the clypeus, at the base of the mandibles, 9-jointed; first joint long, robust, cylindric; second joint more or less globular; third small; fourth, fifth, and sixth transverse, somewhat cup-shaped; seventh, eighth, and ninth, forming a nearly globose ovate lamellated club. (f. 6.) *Labrum* concealed by the clypeus, membranaceous, subquadrate; angles rounded, ciliated. (1.)

Mandibles concealed by the clypeus, dilated and corneous at the base, membranaceous, rounded, entire, striated at the apex, ciliated. (2.)

Maxillæ crustaceous, terminated by a dilated lobe, thickly covered with short hair externally, ciliated; and having a bifid lobe on the internal side below the base of the palpi, pilose, and ciliated: *Palpi* 4-jointed, rather long, filiform, naked; first joint small; second and fourth longer than the third joint. (3.)

Mentum somewhat quadrate, deeply emarginate, pilose: *Palpi* short, cylindric, smooth with a few hairs; joints nearly equal.

Labium membranaceous, bilobed, fimbriated. (4.)

Clypeus semicircular or lunate, in many tuberculated. Thorax transverse-quadrate. Scutellum distinct. Elytra convex, completely covering the abdomen, when viewed conjointly longer than broad. Wings 2. Feet all equi-distant, robust. Thighs with an impressed line of hairs inside, particularly in the first pair. Anterior tibiæ tridentate externally (5. a fore leg): four posterior tibiæ with 2 spines at their apex. Tarsi 5-jointed.

VILLOSUS Gyl. Ins. Suec. t. 1. p. 40. n. 38.

Shining: ferruginous. Clypeus angular, narrowed before, scarcely emarginate, without tubercles, punctured: thorax transverse, convex, thickly punctured, with a smooth line down the centre, pubescent. Scutellum small. Elytra convex, pilose, piceous, more fuscous on the back, with seven broad furrows having a line of punctures down each side; interstices flat, shining. Legs and underside pale piceous.

In the Cabinet of Mr. Vigors.

As it is the intention of my friend Mr. Stephens to publish a Catalogue of British Insects, comprehending all the orders,

I shall refrain from enumerating the species contained in the Genus *Aphodius* (upwards of 50), and content myself with giving the different groups into which it has been found convenient to divide them.

A. Clypeus emarginate.

- * Tuberculated; thorax sulcated transversely. *A. asper*.
- ** Smooth; elytra deeply sulcated. *A. porcatus*, &c.
- *** Smooth; elytra with flat interstices between the furrows. *A. cæsus*.
- **** Slightly emarginate, smooth. *A. villosus*, &c.
- ***** Tuberculated. *A. Fossor*, &c.

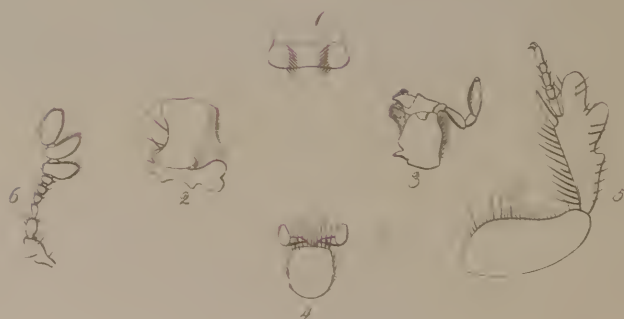
B. Clypeus entire, smooth.

A. rufipes, &c.

The larvæ have six feet; they are annulated, hairy, with a vesicle at the apex of the abdomen; they have a hard horny head; they live inactive in dung, upon which they feed. (Stewart's Nat. Hist.) The perfect insects fly in the sunshine about the excrement of animals, especially horses and cows.

Aphodius villosus is an extremely rare species on the Continent, and in this country the only specimen known is the one figured in the plate, which I found dead several years since in the month of August upon Newmarket Heath; and I have little doubt that I should have captured more if it had been earlier in the season, but my most diligent search proved fruitless.

For specimens of the local and beautiful *Anemone Pulsatilla* (Pasque Flower or Hill Tulip) I am indebted to my kind friend J. S. Henslow, Esq., Professor of Mineralogy at Cambridge, who gathered them upon Newmarket Heath, not far from the spot where the *Aphodius* was taken.



PSAMMODIUS SULCICOLLIS.

ORDER Coleoptera. FAM. Aphodiidæ Nob.—Coprophi Lat.

Type of the Genus Aphodius sulcicollis Ill.

PSAMMODIUS Gyll., Lat., Leach., Dej.—Aphodius Fab., Ill., Lat., Panz., Sturm.

Antennæ inserted under the clypeus and before the eyes; 9-jointed, pilose, basal joint rather robust oblong, 2nd subglobose, 3rd slender, pear-shaped, 3 following rather cup-shaped, the remainder forming a lamellate, very pubescent and somewhat fleshy club, the 7th and 8th joints rather boat-shaped, the 9th oval (6).

Labrum concealed, transverse, transparent and coriaceous, the sides rounded, and on the under side are 2 longitudinal lines of hair (1).

Mandibles concealed, coriaceous, thin and transparent, rigid at the base, subquadrate, external edge concave, producing a few bristles, internal margin rather membranous and ciliated (2).

Maxillæ very pilose on the outside, producing a horny emarginate lobe, with a minute membranous and pubescent one above, and a similar but larger one on the internal side. *Palpi* 4-jointed, basal and 3rd joints small, the former membranous, 2nd longer subclavate, 4th the longest, subovate, terminated by a vesicle (3).

Mentum suborbicular, not emarginate, very pilose. *Labium* scarcely visible. *Palpi* short robust, triarticulate; basal joint minute, 2nd rhomboidal, 3rd large ovate (4).

Clypeus notched. *Eyes* small, placed at the base of the head and concealed under its margin. *Head* rounded. *Thorax* transverse ovate. *Scutellum* minute. *Elytra* very convex, ovate, broader than the thorax in some. *Wings* 2. *Legs* all equidistant, robust. *Tibiæ* spurred, anterior compressed, dilated, trilobed externally; the others simple. *Tarsi*, anterior the slenderest, posterior the most robust; 5-jointed, basal joint as long as the terminal one. *Claws* small, (5, a fore leg).

SULCICOLLIS Ill., Gyll., Sturm.

Smooth, shining, black, frequently inclining to castaneous. *Antennæ* ochreous. *Head* rugose. *Thorax* slightly pubescent with 5 transverse ridges, the furrows between slightly crenated; a fovea in the centre near the base. *Elytra* with 10 crenated striae on each. *Legs* castaneous.

In the Author's and other Cabinets.

WHEN the Aphodii were illustrated in 1824, I was not aware that Major Gyllenhal had included the first two of my divisions in his genus *Psammodius*; and the Baron Dejean considers the 3rd to belong to the same group; but it certainly recedes very far from the type.

The mandible which I have figured does not agree with Gyllenhal's description, but it is probable that one is dentated and the other simple; and in dissecting the only specimen I could obtain, I was unable to find any other than the one represented.

The most important distinctions that separate *Psammodius* from *Aphodius* are, the more corneous mandibles, the shorter 3rd joint of the maxillary, and the more dilated terminal one of all the palpi. The joints of the antennæ are very dissimilar, and the lamellæ of the club are less produced; the tibiæ are more dilated, and the four posterior are scarcely or not at all serrated.

Nearly all the species are partial to sandy districts; and the following are natives of Britain.

1. *P. sulcicollis* Ill., *Curtis Brit. Ent. pl.* 258.

Taken at Swansea, in May, by Mr. Millard; also I believe near Mildenhall, in Suffolk, by Mr. Joseph Sparshall, in Oct.

2. *P. asper* Fab., *Panz.* 47. 13.

Taken at Swansea, South Wales.

3. *P. Sabuleti* Fab., *Sturm, tab.* 15, *f. A, B.*

Taken at Swansea and Crickhowel, on the river Usk, Brecknockshire.

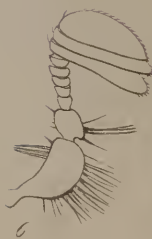
4. *P. porcatus* Fab., *Panz.* 28. 13.

Taken the middle of March, at Fulham, amongst dung, by Mr. C. J. Thompson; also in Norfolk, by Mr. Brightwell, in September, in decayed cucumbers.

5. *P. cæsus* Fab., *Panz.* 35. 2.

Taken at Pentire-point, north-of-Cornwall; Dr. Leach.

The plant is *Vicia lathyroides* (Strangle Tare).



TROX SABULOSUS.

ORDER Coleoptera. FAM. Geotrupidæ.—Trogidæ MacLeay.

Type of the Genus, Scarabæus sabulosus Linn.

Trox Fab., Lat., MacL., Curt.—Scarabæus and Silpha Linn.

Antennæ not so long as the head, inserted in a little cavity close to and before the eyes, and concealed when at rest under the inflected sides of the thorax, capitate and 10-jointed, basal joint long, very stout, but small at the base, clothed with long spiny bristles, especially on the inside, 2nd stout, subquadrate, narrowed at the base and forming a falcate angle inside, and producing a few long spiny bristles, 5 following joints more slender, cup-shaped and transverse, excepting the 3rd; 8th, 9th and 10th forming a compact subovate laminated club (6).

Labrum transverse semiovate, the base narrowed and forming 2 lateral angles, anterior margin unequally concave and ciliated with spiny bristles (1).

Mandibles strong and stout, very convex and hairy externally, rather obtusely pointed with a deep rounded notch on the inside, covered by a leathery lobe (2).

Maxillæ with 2 lobes, the internal one having 1 or 2 strong teeth at the apex, and a series of spiny bristles down the inside, external lobe not longer than the other, articulated and subtrigonal at the apex, which is furnished with 3 or 4 curved teeth as well as hairs, also clothed with long hairs externally at the base. *Palpi* rather long and 4-jointed, basal joint minute, 2nd short stout and clavate, 3rd nearly as long and stout, 4th long and robust, fusiform-ovate (3).

Mentum subquadrate, very hairy, sides and anterior angles rounded, the centre concave.

Labium forming 2 maxillæform lobes, ciliated internally and concealed above by the hair of the mentum. *Palpi* short remote and triarticulate, basal joint minute and concealed amongst the hair, 2nd joint short somewhat obovate, 3rd longer stouter and ovate-conic (4).

Head drooping, transverse-ovate: eyes small, lateral and partially concealed beneath the Thorax, which is transverse, broadest at the base, which is bisinuated, the angles acute, the centre lobed, the anterior margin concave: scutellum subovate. Abdomen flat beneath. Elytra convex, oval, truncated at the base. Wings ample. Legs contractile, anterior with the thighs very much dilated, ovate, the inside very pubescent, internal edge crenated, the apex forming a knob: tibiæ compressed and dilated, except at the base, with a strong spine at the internal apex, where it is hollow and denticulated, the apex obtuse with a blunt tooth below, on the outside in the female? with 5 or 6 strong teeth in the male?: tarsi short, inserted in the cavity close to the spine, 5-jointed, first 4 joints turbinate, 5th longer a little stouter and clavate: the other tibiæ are more or less serrated externally and spurred at the apex: claws small, simple and curved (5, a fore leg).

Larvæ fleshy, pale and slightly hairy, the apex incurved. Waterhouse in Trans. Ent. Soc.

In the Author's and other Cabinets.

THIS is one of those anomalous types that little resemble the rest of the family, even in its fullest extent, for none of the exotic genera appear immediately to connect it with any of the others. The structure of the antennæ and trophi, however, shows the family to which it belongs, with the exception of the mandibles, which are notched like the *Heteromera*, and it is remarkable that the labrum is not symmetrical, as shown also by Mr. William MacLeay in his genus *Phoberus*.

There is no portion of the globe perhaps where some species of *Trox* is not to be found, if we may judge from the extensive range exhibited in Dejean's Catalogue, where 40 species are recorded. As far as we know, they inhabit sandy districts, and feed upon dead animals. Latreille says they produce a creaking noise by means of repeated and alternate friction of the peduncle of the mesothorax, against the internal partitions of the cavity of the thorax; that they keep in the earth or in the sand, and appear to eat the roots of vegetables.

Our British species are:

1. *T. sabulosus* Linn.—Curt. Brit. Ent. pl. 574. ♂.

Dull black, rugose, thickly and very coarsely punctured: antennæ ferruginous: clypeus semiorbicular: thorax ciliated with ochreous hair, except the anterior margin, with a broad groove down the back, and 3 or 4 foveæ on each side: elytra with 5 double rows of foveæ forming 4 elevated ridges, ornamented with small tufts of ochreous pubescence, leaving 2 or 3 fine elevated lines between each.

From April to beginning of July, in Costessey Park, Norfolk, under a dead animal, and in abundance in a dead Rook by the gravel-pits, Coomb Wood; Parley Heath and New Forest, Mr. Dale; also near Portsmouth, in Cambridgeshire, Kent, and Devon.

2. *lutosus* Marsh. 25. 40.

"Fuscous-cinereous, elytra with elevated striæ and lines, clypeus margined and acute. Length 6 lines."

Taken by the Rev. P. Lathbury during a flood at Livermere, Suffolk.

3. *scaber* Ill.—*scabra* Linn.—*arenarius* Fab.—Panz. 97. 1.

Dull black, thickly and coarsely punctured; antennæ ferruginous; clypeus rounded: thorax ciliated with ferruginous hairs, having 6 foveæ, 2 forming a channel down the back, with 2 on each side: elytra with 4 lines of tubercles clothed with ochreous pubescence, with a line of minuter ones between each, as well as 2 neatly punctured striæ: legs and sometimes the thorax dull castaneous, anterior tibiæ slightly dilated and denticulated at the apex. Length 3 lines.

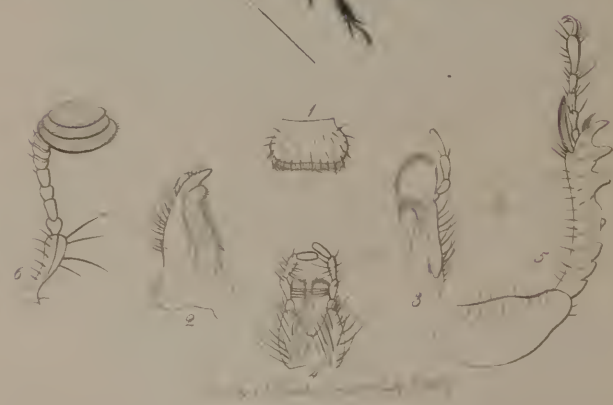
April, in gardens under dry bones, stones, &c., and sometimes flying. Found in a putrid ash post, I believe, at Bot-tisham, Rev. L. Jenyns; May, Halifax and Scarborough; June in carrion on the sand-hills, Swansea, Mr. Dillwyn.

4. *arenosus* Gyll. 1. 11. 2.

"Black, thorax unequal, elytra somewhat striated, alternate interstices with smooth tubercles, clothed with long bunches of hairs at the apex." Length $3\frac{1}{2}$ lines?.

Mr. Hewitson took a specimen at Lowestoft, Suffolk.

The beautiful Plant figured is *Menziesia polifolia* (Irish Heath), which I gathered last July and August in Connemara.



GEOTRUPES LÆVIS.

The smooth Dor, or Clock-beetle.

ORDER Coleoptera. FAM. Geotrupidæ Lat., Leach.

Type of the Genus, *Scarabæus stercorarius* Linn.

GEOTRUPES Lat., Leach, Sam.—*Scarabæus* Linn., Fab., Oliv., Gyll., Panz.

Antennæ inserted close to the eyes, under the nasus, capitate, 11-jointed, basal joint very long, triangular and pilose, 2nd globose, 3rd longer, 4th subquadrate, 5th a little longer, 3 following transverse cup-shaped, the remainder forming an oval lamellated velvety club, the basal joint only horny beneath (6).

Labrum prominent, pocket-shaped, rugose and pilose above, coriaceous and pubescent at the margin and beneath (1).

Mandibles corneous, porrected, long bent, emarginate at the apex, the internal margin coriaceous and very pubescent (2).

Maxillæ with the stalk long and corneous, terminated by a round fleshy lobe, hairy like a brush at the side, with a similar but smaller lobe on the inside. *Palpi* short, cylindric, nearly naked, 4-jointed, basal joint minute, 2nd scarcely so long as the 3rd, which is of equal length with the 4th (3).

Mentum corneous, very pilose and deeply emarginate. *Palpi* remote, attached to scapes at the extremity of each lobe of the mentum, composed of 3 nearly equal joints, the 1st and 2nd clavate and pilose, the former on the inside only, 3rd joint subcylindric-truncate. *Lip* thick, coriaceous bilobed and very pubescent at the margins (4).

Head triangular. Nasus rhomboidal. Eyes small lateral, divided by the margin of the head, and touching the Thorax which is broad convex and smooth. Scutellum rather large and triangular. Elytra oval. Wings ample. Legs very strong. Thighs short, the posterior sometimes spined. Tibiæ curved spined at the apex, the anterior dentated externally, the others notched. Tarsi 5-jointed, the basal joint nearly concealed in the anterior pair. Claws bent (5 a fore leg).

LÆVIS Haw. Ent. Trans. p. 79.

Very smooth, shining, black or violaceous. *Antennæ* with the club black, the terminal lamina sometimes ferruginous. Head rugose. Thorax thickly punctured, with a fovea on each side. Elytra with several faintly punctured striæ. The body beneath pubescent, sometimes inclining to green. Legs hairy, the posterior thighs serrated at the inner margin. Claws castaneous.

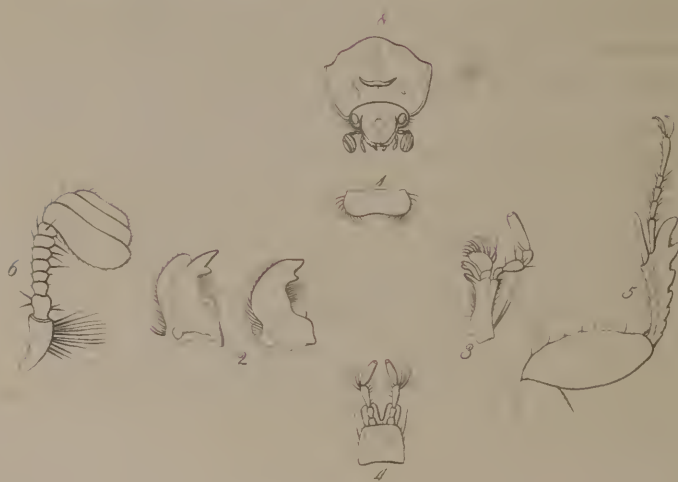
In the Author's and other Cabinets.

THE Dor or "shard-borne Beetle" of our immortal Bard, whose evening flight is considered to presage a fine day, and whose loud and harsh hum must be familiar to every one, is the type of our genus. These beetles are found from March to the end of September; they live in dung during the day, and burrow beneath it to a great depth for the sake of depositing their eggs; surrounding them, Mr. Kirby informs us, "by a mass of dung in which they have previously enveloped them; thus not only dispersing the dung, but actually burying it at the roots of the adjoining plants, and by these means contributing considerably to the fertility of our pastures, supplying the constant waste by an annual conveyance of fresh dung laid at the very root; by these canals also, affording a convenient passage for a portion of it when dissolved to be carried thither by the rain." Their upper sides vary from black to the richest green, copper and dark blue, and the violet and chalybeous tints of their undersides are perhaps without a rival in nature.

Britain is rich in the variety and abundance of these insects; and the following are our native species.

1. *S. stercorarius* Linn.—Don. 8. 264. 3.—Panz. 49. 1.
spiniger Marsh. mas.—Sowerby Brit. Mis. tab. 35. 1.
puncticollis Sam. var.
foveatus Marsh. var.—Sow. Brit. Mis. tab. 35. 2.
mutator Marsh. var.—*politus* Sam.
2. *niger* Marsh.
3. *sylvaticus* Fab.—Don. 16. 547. 2.—Panz. 49. 3.—The beginning of June I found this insect in abundance on the mountains near Ambleside; all the specimens were dull and black.
4. *lævis* Haw.—Curtis Brit. Ent. pl. 266. The end of August, near Lyndhurst.
5. *vernalis* Linn.—Don. 16. 547. 1.—Panz. 49. 2.—Heaths and sandy places in the spring, and I have taken it near Godstone in Surrey, and Lyndhurst in the New Forest in August.

The plant is *Ervm hirsutum* (Hairy Tare).



BOLBOCERAS MOBILICORNIS.

ORDER Coleoptera. FAM. Geotrupidæ Lat., Leach.

Type of the Genus Scarabæus mobilicornis Fab. .

BOLBOCERAS Kirby, McLeay.—Odontæus Meg., Dej., Sturm.—Scarabæus Fab., Marsh., Gyll.

Antennæ inserted under the nasus and before the eyes, capitate, lamellate, 11-jointed, basal joint long, producing very long hairs on the inside, 2nd joint large, cup-shaped, the 6 following short and rather transverse, the remainder forming an oval mass horny outside, coriaceous within, the 9th joint being the largest, the terminal one the smallest, appearing sliced off and porous at the apex (6).

Labrum transverse, sides rounded, slightly emarginated and ciliated, with long curved, spiny bristles (1).

Mandibles corneous, small, curved, one with a rounded shoulder on the outside, apex bidentate, internal side emarginate, with a portion membranous and ciliated (2).

Maxillæ minute, terminated by a horny articulated ovate lobe, producing a few curved bristles, 2 horny teeth on the inside, the upper one slightly bifid. *Palpi* longer than the maxillæ, 4-jointed, 1st and 3rd joints small, the former slender, 2nd longer obtrigonal, 4th very long, subovate (3).

Mentum subquadrate covered with long pubescence. *Lip* transverse, horny, deeply cleft in the centre. *Palpi* attached to small scapes, triarticulate; basal joint minute, 2nd long pilose subclavate; 3rd a little longer, elongate-oval, terminated by a gland (4).

Head small, producing a long erect horn in the male. Thorax large cornuted in the males, simple in the females (8). Scutellum triangular. Elytra very convex and short. Wings ample. Tibiæ curved, spined and spurred, anterior compressed, serrated on the external edge and producing a long obtuse spine at the internal apical angle (5). Tarsi long, 5-jointed, basal and terminal joints of equal length, 4th minute. Posterior tibiæ dentated and spined; terminated by 2 spines, one of which is very long in the hinder pair.

MOBILICORNIS Fab. *Ent. Syst. v. 1. pars 1. p. 15. n. 43.*—testaceus Oliv.—Fab. *E. S. 1. 27. 83. var.*

Male, Castaneous black, shining. *Palpi* ochreous, head and thorax punctured, the former with a long moveable horn at the base of the nasus, the latter with a groove in the centre with a tooth on each side to receive the horn, a broad strong tooth on each side near the anterior and 2 foveæ near the posterior angles. Each elytron with 14 punctured striæ. Legs castaneous. Underside testaceous, pubescent.

Obs. Some specimens are entirely testaceous; the males are frequently smaller and have their horns much shorter than in the variety figured. The females have no horns.

In the Author's and other Cabinets.

MR. KIRBY has given the characters of this genus in the 12th volume of the Linnæan Transactions, where he has most satisfactorily proved that *Bolboceras* ought to be separated from *Geotrupes*; this was in 1817; and I am not aware that the genus had been previously described, although the name of *Odontæus* has been given to it upon the Continent.

1. *B. mobilicornis* Oliv.—*Curtis Brit. Ent. pl.* 259. male, var.

This curious insect is considered rare in Britain, but it has occasionally been taken in great abundance. I well remember several years since, as my friend Mr. Joseph Sparshall was, one evening in June, crossing Mousehold Heath, a few miles from Norwich, that he took considerable numbers that were flying across the road, most of them being of a testaceous colour; I once took a dark female flying in the same county. Mr. Wm. Skrimshire captured a pair on the wing at Wisbech, between 9 and 10 o'clock at night, in the beginning of July; and during that month, specimens have been found in dung at Darent in Kent.

2. *B. quadridens* Oliv., *Fab. Ent. Syst. v. 1. pars 1. p. 15. n. 42. Panz.* 12. 1.

Twice as large as *B. mobilicornis*; ferruginous, head in the male with a short immoveable tooth on the crown; the thorax with four obtuse teeth, forming a transverse line near to the anterior margin; the female having only an elevated line, and another on the head.

In the Transactions of the Entomological Society (p. 316) is the following memorandum, by Mr. Wm. Skrimshire: "Of this species, which I believe is quite new to Britain, I found a pair, male and female"; this was in the early part of the summer of 1807, on the marshes between Peterborough and Wisbech, during a flood.

The plant is *Lotus corniculatus* (Common Bird's-foot Clover).



MELOLONTHA FULLO.

The Kent Cockchaffer.

ORDER Coleoptera. FAM. Melolonthidæ.

Type of the Genus, Scarabæus Melolontha Linn.

MELOLONTHA Fab., Lat., MacLeay, Curt.—Scarabæus Linn.

Antennæ inserted before the eyes in a cavity beneath the clypeus, as long as the head, lamelliform, much larger in the male than female, 10-jointed, basal joint the longest, robust, subclavate, pilose above, 2nd chalice-shaped, 3rd considerably longer than the 2nd, elongate pear-shaped, the remainder very much produced on one side in the *male* and forming 7 broad thin plates (6 ♂) : 4th joint cup-shaped in the female, the remainder forming 6 much shorter and narrower plates than in the other sex (6 ♀).

Labrum transverse, thick, pilose, bilobed, having a deep notch in the centre, the margins ciliated with broad and acute bristles (1).

Mandibles subtrigonal, bent at the apex, one being broader and thinner than the other; at the base of each on the inside is a black horny space, furrowed transversely, and margined above with a coriaceous pubescent membrane (2).

Maxillæ short and stout, horny at the apex and cleft into teeth with a coriaceous pilose margin or lobe on the inside. *Palpi* considerably longer than the labial, pilose, 4-jointed, basal joint minute, 2nd subclavate longer than the 3rd which is obovate, 4th as long again subventricose-ovate (3).

Mentum suborbicular, pilose, concave at the base, slightly emarginate before, forming 2 obtuse angles. *Palpi* attached to 2 tubercles on the side where a notch is formed in the mentum; short, pilose, triarticulate, basal joint minute, 2nd longer obtrigonal, 3rd scarcely longer than the 2nd; subconical. *Lip* concealed behind the mentum, subcordate and fleshy (4).

Clypeus subquadrate, circumscribed by a transverse suture before the eyes, the angles rounded, the anterior margin very thick, and recurved. Eyes remote, with a horny pubescent lobe extending along the middle. Thorax broad, narrowed before. Scutellum large. Elytra ovate, shorter than the body. Wings very ample. Abdomen attenuated and horny at the apex. Legs rather slender. Thighs short. Tibiæ, anterior slightly dilated, with an internal spur and 2 teeth on the outside at the apex (5); shorter and broader in the female (5 ♀); the other tibiæ spined and spurred at the apex. Tarsi alike in both sexes, 5-jointed, terminal joint the longest and clavate. Claws with a small tooth at the base (5, fore leg of a male).

FULLO Linn. F. S. 137. 394.—Curt. Guide, Gen. 128. 1.

In the Author's and other Cabinets.

THE *M. vulgaris* and *M. solstitialis* occasionally make their appearance in myriads, flying about trees and hedges in the evening; at such times they are very annoying, but being perfectly harmless, it is a prejudice to be alarmed as many

persons are when they fly round them. Rooks render an essential service by discovering and devouring the grubs of the *M. vulgaris*, which remain in that state four years, sometimes doing incredible mischief to grass land. Poultry, pigs, and cats will eat these beetles, which have sometimes been so numerous as to defoliate the trees of extensive districts, especially the Oak, Beech, Apple, Fir, Elm, Sycamore, Lime, and Willow.

The following are British insects, and may be thus divided.

* Antennæ 10-jointed, club of the female composed of 6 plates. Abdomen acuminate.

1. *M. vulgaris* *Fab.*—*Melolontha* *Linn. F. S.* 136. 392.—*Don.* 8. 264. 2.

Black, antennæ testaceous, clypeus castaneous, head and thorax æneous, hairy and thickly punctured. Elytra ferruginous, rugosely punctured, with 4 elevated lines on each, the interstices clothed with whitish hairs, sides of the abdomen ornamented with a white triangular spot on each segment; the apex and legs ferruginous.

Found from the middle of May to July, everywhere.

** Antennæ of female, with the club composed of 5 plates. Abdomen not acuminate.

2. *M. Fullo* *Linn.*—*Curt. Brit. Ent. pl.* 406. male.

Castaneous, head and thorax black, coarsely and irregularly punctured and sprinkled with yellowish scales, the former with a broad line of whitish scales down each side by the eyes; the latter with a stripe of the same down the middle, and a less regular one on each side: scutellum densely clothed with ochreous scales: elytra rugose with punctures, and variegated with numerous spots and markings formed of whitish scales: beneath hairy, the abdomen pubescent.

The line in the plate shows the usual length of the males; the females are larger.

This noble insect is very rare in England; it once occurred at Sandwich in some abundance, a male was taken in July at Deal, and Mr. Le Plastrier captured one at Dover; Mr. Bracy Clark informed me that the late Mr. Francillon said that they issue from the sand, mount into the air and disappear. The larva feeds on the roots of the plant figured.

*** *AMPHIMALLA* *Lat.*—Antennæ alike in both sexes, 9-jointed, 3 terminal joints forming the club: anterior tibiæ not denticulated externally.

3. *M. solstitialis* *Linn. F. S.* 393.—*Oliv. 1. No. 5. pl. 2. f. 8.*

Ferruginous, shining; head and thorax punctured, clothed with long soft hair, the eyes and base of the head black: elytra ochreous, sparingly punctured and producing a few long hairs, with 3 elevated lines on each. Very common everywhere in June and July.

The Plant is *Polygonum Fagopyrum* (Buck-wheat).



Cerambyx cerisyi L.

526.

ANISOPLIA SUTURALIS.

The Sutherland Bracken-Clock.

ORDER Coleoptera.

FAM. Melolonthidæ.

Type of the Genus, Scarabæus Horticola Linn.

ANISOPLIA *Meg., Curt.*—Phyllopertha *Kirb.*—Scarabæus *Linn., Panz., Fab., Mars.*—Melolontha *Fab., Gyl.*

Antennæ not longer than the head, clavate, inserted close before the eyes, pilose and 9-jointed, basal joint longer than the 5 following, stout and clavate, 2nd globose, 3 following oblong, of equal length, the 5th truncated obliquely, 6th cup-shaped, the remainder forming a lamellate ovate club (6♂), smaller in the female.

Labrum nearly concealed beneath the clypeus, transverse and rather deeply emarginate, angles rounded, margin ciliated with hairs and bristles (1).

Mandibles stout, subtrigonal, rounded externally, tridentate at the apex, with a deep excavation on the inside, filled by a membrane; pubescent at the margin, the basal portion serrated, thickened and flattened internally, the edges serrated (2).

Maxillæ subtrigonal, the apex horny and forming 5 or 6 strong teeth, the internal margin ciliated above. *Palpi* 4-jointed, basal joint small, 2nd obovate, a little longer than the 3rd, 4th the longest, subelliptic, a little dilated and truncated obliquely (3).

Mentum oblong, subovate, clothed with long hairs, the anterior portion cordate and fringed with short spines. *Palpi* inserted in cavities on each side towards the apex, short, curved and triarticulate, basal joint short ovate, 2nd larger, 3rd the largest, externally convex, subovate (4).

Head orbicular: Clypeus broad, truncate, the angles rounded, the margin reflected and a little concave in the male. Eyes small and lateral, notched on the inside. Thorax broader than the head, convex, transverse, concave before, posterior angles acute: scutellum triangular. Elytra broader than the thorax and ovate. Wings ample. Legs rather long: tibiæ, anterior compressed and produced externally at the apex, where they are emarginate and form 2 distinct teeth in the male (5♂); 4 posterior with 2 oblique series of spines outside, the apex regularly spined, with a pair of strong unequal spurs on the inside: tarsi 5-jointed, anterior stoutest in the male, the apex of each joint armed with strong spines beneath: claws strong and unequal the internal one being considerably the largest and bifid in the anterior and intermediate pairs (5).

SUTURALIS *Newm.*—*Curt. Guide, Gen. 132. No. 2^a.*

Shining black with a green tinge, sparingly clothed with long soft pale hairs: head thorax and scutellum green, irregularly punctured, the former very thickly in front; 5 first joints of antennæ ochreous, the 2 basal ones with a black spot above; elytra dull ochreous, with numerous irregular and faint lines of punctures, the suture, shoulders and external margin black, very narrow at the apex, where there is a brown spot on each side; spines of tarsi and tips of claws ferruginous.

In the Cabinets of Mr. James Wilson, Sir W. Jardine, and the Author.

THE genus *Anisoplia* contains the following British species :

* With the clypeus not produced, inner claw of the 4 posterior feet strongly bifid.

1. *Horticola* Linn.—Panz. 47. 15.—*Arvicola* Mars. var.

This insect, which is called by the farmers of Norfolk the May-bug, and by anglers the Bracken-clock, makes its appearance the end of May, and is found during June and July, sometimes covering the hedges and plants in our gardens: it likewise frequents cornfields and the skirts of woods. Stewart says that the larvæ feed on the roots of *Brassica lotris* and *capitata*, but leave untouched those of the *B. viridis* and *sub-auda*, and that the perfect insect destroys every sort of fruit-tree, except the common Pear. Mr. Dillwyn says, near Swansea it is "extremely common every summer, particularly on roses, and appeared in immense numbers in 1814, when on their first appearance the Sparrows on the lawn were so gorged with them, that several were unable to fly."

The end of May 1833, I received a letter from a Lady in Norfolk lamenting the loss of her roses and other garden flowers from the incursions of these beetles; they seemed to travel in a line, as they were not observed in places but a few miles distant. There were few plants left untouched, and of the roses, which were their favourite food, the fibres only of the leaves were left, and on the flowers of those varieties that were in bloom, they hung like small swarms of bees: in about ten days or a fortnight they died or disappeared. The previous year the Apples and Nectarines were destroyed by them in the same neighbourhood, and if I mistake not, the great attraction, and probably that which influences or directs their course in their migrations, is the scent of the eglantine and bramble.

2. *suturalis* New.—Curt. Brit. Ent. pl. 526. ♂.

For this pretty insect I am indebted to my friend James Wilson, Esq., of Edinburgh, who with his usual liberality presented me with specimens of all the rarities he captured last July in Sutherlandshire, where he met with the specimen figured. It has also been "taken by Mr. Bevington in immense profusion on the sea coast in the north of Ireland."

* * Clypeus produced: inner claw of 4 posterior feet obscurely bifid.

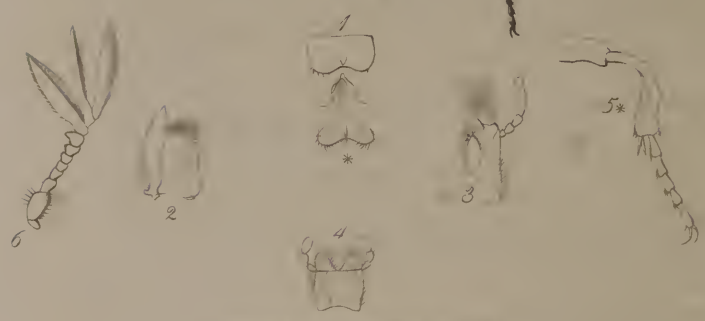
3. *Agricola* Linn.—Panz. 47. 18.—Don. 11. 390. 1.

The end of July, says Donovan, "we were so fortunate as to capture a living specimen on the sea coast of the county of Caermarthen, South Wales."

4. *Donovani* Mars. *Coleop. Brit.* 44. 77.

Taken by Mr. Donovan in July at the mouth of the river Ogmores, Newton Bay, Glamorganshire. It is now in the British Museum.

The Plant is *Empetrum nigrum* (Crow- or Crake-berry), plentifully in fruit on the hills in Skye last August.



TRICHIUS VARIABILIS.

ORDER Coleoptera. FAM. Melolonthidæ *Leach*. Scarabæides *Lat*. Cetoniidæ *MacL*.

Type of the Genus, Scarabæus variabilis Linn.

TRICHIUS *Fab., Lat., Leach, MacL., Sam.*—Cetonia, *Oliv.*—Scarabæus *Linn., Mar., Don.*

Antennæ inserted close to the eyes, shorter than the head, capitate, 10-jointed, basal joint large, curved, narrowed at the base, producing long hairs and bristles, 2nd joint turbinate, 3rd subquadrate, 4th and 5th transverse, 6th cup-shaped, truncated obliquely, 7th subcampanulate, the remainder forming a long and slender lamellated club, pubescent beneath, the 9th joint being the thinnest (6).

Labrum coriaceous transverse, slightly emarginate with a small lobe at the centre (1): beneath is a thicker pilose membrane, of the same shape at the margin, with the lobe ciliated (*).

Mandibles with the external portion horny and lanceolate, the internal shorter, dilated, membranous and pubescent, the base horny (2).

Maxillæ with the stalk long, terminated by an articulated ovate lobe, densely clothed with fine long hairs, an oblong ciliated lobe on the inside below the *Palpi* which are short slender and 4-jointed, basal joint minute, 2nd and 3rd short obovate, 4th long, compressed and obtuse at the apex (3).

Mentum large, very pilose, subquadrate, truncated at the base and the anterior margin. *Labium* short, forming 2 thick pilose lobes. *Palpi* short, attached to the posterior angles of the labium, triarticulate, basal joint short and slender, 2nd obtrigonal, 3rd the largest oval (4).

Clypeus covering the *Trophi*, quadrate, the anterior margin reflexed and slightly emarginate. Thorax suborbicular, truncated anteriorly. Scutellum trigonate. Abdomen bituberculate at the apex in the females. Elytra not covering the body, subquadrate. Wings very ample. Legs long. Tibiæ with a tooth outside below the middle, anterior compressed with a spine at the apex, the others spurred, the middle pair very much curved in the males (5*). Tarsi long, rather pilose beneath in the males, 5-jointed, basal joint scarcely longer than the 2nd, terminal joint as long or a little longer than the 1st. Claws bent acute. Pulvilli minute.

VARIABILIS *Linn. Faun. Suec.* 139. 402.—octopunctatus *Fab. Ent. Syst.* 1. 2. 119. 3.

Black, shining. Head with the punctures forming reticulations. Thorax coarsely, thickly and irregularly punctured, with a shallow depression down the back. Elytra very broad and glossy, rugose with punctures forming obscure striæ; 10 yellowish white spots across the middle forming a depressed cross. Abdomen in the male, with a small ochreous spot on the side of each segment, and 2 large ones on the last. Underside partially villose, the hairs ochreous. Legs punctured.

In the Author's and other Cabinets.

I BELIEVE no difference exists in the antennæ to distinguish the sexes of *Trichius*, but the abdomens vary in their shape at the apex; and the tibiæ of the intermediate pair of legs is remarkably curved at the base in the males of some species, a character pointed out to me by Mr. J. H. Griesbach.

I observed in dissecting the mouth that the labrum is formed of two plates, the upper one being attached and applied close to the clypeus; the other is united by a long muscle to the head: in the *Geodephaga*, the latter appears to be wanting, or else it forms the lining to the labrum.

The larvæ of the *Trechî* live in putrescent wood, where the perfect insects are also found, as well as upon the trunks of trees, and frequently upon flowers.

The following species have been recorded as British.

1. *T. hemipterus* Linn.—*Oliv. v. 1. n° 6. pl. 9. f. 83.*—*Schæf. Icon. tab. 46. f. 10 & 11.*

The late Mr. Francillon assured me that the pair contained in his Cabinet were found alive in England; I think he said in a chalk-pit in Kent. It occurs on the Continent at the roots of rotten willows, in sandy places.

2. *T. fasciatus* Linn.—*Don. Brit. Ins. 4. 140.*

This rare and handsome insect is said to be attached to the flowers of the *Syringa*, *Filipendula*, and umbelliferous plants. Most of our specimens I believe came from Wales, where it has been found by Mr. Dillwyn. I had the pleasure of being present when Mr. Dale found one upon the flowers of thyme near Loch Rannoch, the 14th July.

3. *T. variabilis* Linn.—*Curtis Brit. Ent. pl. 286.*

The only figure in any English work of this insect, is in "The Entomological Transactions," from a female taken upon the trunk of an oak in 1806 at Penge Common near London. It is now found annually by the Messrs. Griesbach in the decayed parts of oak trees in Windsor Forest; and these gentlemen have also bred it from the larva.

4. *T. nobilis* Linn.—*Don. 5. 154. fig. 1, 2 & 3.*—*Sam. pl. 1. f. 2.*

This local insect is found in May and June in the flowers of the dog-rose, elder, &c.

The plant is *Rhamnus Frangula* (Alder Buckthorn).



Collyris punctata

CETONIA STICTICA.

ORDER Coleoptera. FAM. Melolonthidæ *Leach.*—Scarabæides *Lat.*—Cetoniidæ *MacL.*

Type of the Genus, Scarabæus auratus Linn.

CETONIA *Fab., Lat., Oliv., MacL., Sam., Curt.*—Scarabæus *Linn.*

Antennæ short, inserted close to and before the eyes, in a cavity on each side the clypeus; 10-jointed, basal joint robust, narrowed and curved at the base, 2nd subglobose, 3rd rather longer than the 2 following, which are cup-shaped, 6th a little longer and more robust, somewhat cup-shaped, 7th short bowl-shaped, the remainder forming a lamellate club, the 8th being slightly pilose beneath (6).

Labrum semiorbicular, emarginate in front, and ciliated (1).

Mandibles subquadrate, elongated at the external angle, rounded and densely pubescent internally (2).

Maxillæ long and slender, internal margin horny and ciliated, terminated by a long soft lobe, densely clothed with long woolly hairs. *Palpi* not reaching the apex of the lobe, naked, triarticulate, basal joint the smallest, cup-shaped, 2nd a little longer, 3rd equal in length to the others united, elliptical (3).

Mentum obcordate, truncated at the base, clothed with long hairs and ciliated anteriorly. *Palpi* inserted in a cavity on each side, short, biarticulate, basal joint partly concealed, 2nd longer, stouter and subovate (4).

Trophi concealed beneath the Clypeus, which is large, quadrate and emarginate. Head rather small and elongated. Eyes lateral, rather small and globose. Thorax subtrigonal, truncated before, the sides rounded. Scutellum elongate-trigonal. Mesosternum terminated before in a globular process. Scapulars filling a triangular space between the thorax and Elytra, the latter emarginate below the shoulders and not covering the apex of the abdomen. Wings very ample. Legs stout, hinder pair the longest. Tibiæ spurred, anterior and intermediate short, the former slightly dilated and dentated externally, towards the apex (5), the latter and hind pair dentated externally at the middle. Tarsi 5-jointed, basal joint nearly concealed, terminal one the longest. Claws slightly bent and acute.

STICTICA *Linn. Syst. Nat.* 552. 54.—*Curt. Guide, Gen.* 135. 1.

Greenish black, shining, sparingly clothed with long ochreous hairs: head minutely punctured: thorax very coarsely and irregularly punctured, with a double row of 3 white spots down the middle and one on each side: elytra with an elevated and abbreviated ridge on each side the suture, which is keeled, and another down the middle; 6 fine double striæ on each with strong punctures between them; about 20 white spots on the elytra, those round the margin being the largest: the apex of the abdomen in one sex with 2 stripes and a dot on each side white: the under side shaggy, with 4 white spots down the centre of the 4 basal joints, and the same on each side, the former being wanting in one sex.

In the Cabinets of Mr. Griesbach and the Author.

THE Cetoniae are most nearly allied to *Trichius* (pl. 286), but are distinguished by their oblong and depressed form, by the elongated scutellum, by the developed scales between the thorax and elytra, and the thickened projecting and acute sides of the metasternum. Latreille says these beetles do not attack the essential parts of flowers, that they only suck the honey at the bottom of the corolla. They fly during the heat of the day with the greatest ease, making a harsh noise with their wings. It is remarkable, that the larva and pupa of the *C. aurita* often live in ant-hills without being attacked by those hostile little animals; whence in some countries they are called *king of the ants*. It is said also, that many German cattle-dealers attribute to them supernatural powers, that they feed this insect in boxes, so that their cattle may prosper as well as their fortunes. The larvæ are nourished by the earth in which they live, and DeGeer is convinced that they are blind. They do not walk, but roll themselves on their backs, and by contracting the annulations of their bodies they move forward. They are supposed to be 2 or 3 years in arriving at their perfect state: they change to Nymphæ about June, when they form of the earth &c. which surrounds them a rough oval cocoon, smooth and black inside.

Of this extensive and beautiful genus two species only have been found in England.

1. *C. aurita* Linn. *F. S.* 138. 400.—*Panz.* 41. 15.

This beetle, well known by the name of the 'Green Rose Chaffer,' is abundant in the gardens round London, where it is seen reposing and revelling in the bosom of the rose, or gaily sporting in the bright sun-beam. It also inhabits the Peony, Elder flowers, the Mountain-ash, &c., and appears in May, June, and July.

2. *C. stictica* Linn.—*Curt. Brit. Ent. pl.* 374.—*Panz.* 1. 4.—*Greenii* Don. 12. 418.

Is extremely rare in Britain. The specimens we possess, Mr. Gould, A.L.S. informs me, were taken at Windsor in Apple-blossoms, 7 or 8 years since; and about the same time others were captured at Chichester. There is no doubt that Donovan's *S. Greenii* is one of our insects rubbed.

Towards the South it is abundant: we did not visit a garden in France from Rhennes to Toulouse, without finding them in the Roses and Thistles. The *C. hirta* (Scop.), a kindred species, is very destructive in Malta to the Apricot blossoms in March, as appears by a letter from Mr. St. John, and transmitted to me by the Horticultural Society, with specimens of the insect.

The Plant is *Rosa canina* (Dog-rose. Wild Briar. Hep-tree).



Drawn by [illegible]

SYNODENDRON CYLINDRICUM.

ORDER Coleoptera. FAM. Lucanidæ.

Type of the Genus, Scarabæus cylindricus Linn.

SYNODENDRON *Fab.*—Sinodendron *Lat., McLeay, Curt.*—Scarabæus *Linn.*

Antennæ inserted under the edge of the clypeus, before the eyes and close to the base of the mandibles, short, slightly geniculated and clavate, 10-jointed, basal joint very long and clavate, curved at the base, 2nd globose, larger than the 5 following, which are somewhat cup-shaped and slightly increasing in diameter, the remainder forming a serrated club of wedge-shaped joints, the 9th joint being a little the shortest, the terminal one truncated obliquely and coriaceous at the apex (6).

Labrum small, subtrigonal and very pilose at the anterior margin (1).

Mandibles alike, small trigonal, slightly arcuated, acute and hollowed at the apex (2).

Maxillæ terminated by an ovate hairy lobe with a smaller lanceolate one on the inside. *Palpi* 4-jointed, basal joint as long, but a little slenderer than the 3rd, 2nd nearly twice as long, the stoutest, clavate-truncate, 3rd slightly cup-shaped, 4th as long as the 2nd elongate-ovate (3).

Mentum suborbicular, truncated before and hairy. *Lip* semi-ovate rigid and pilose, with the *Palpi* attached near the apex, approximating at their insertion, small and triarticulate, 1st and 2nd joints nearly of a size and cup-shaped, 3rd twice as long and subovate (4).

Head with a horn on the clypeus of the male, more or less curved and erected, pubescent above on the sides; the female having only a tubercle (8♀). Eyes small and lateral. Thorax large semicylindric, anterior angles lobed, abruptly truncated in the male, forming a crescent-shaped nearly vertical front, the superior margin projecting and sinuated, producing a tooth at the centre and a smaller one on each side; but slightly excavated in the female (8♀, front view of head and thorax): scutellum obtuse, nearly concealed. Elytra convex, oblong, rounded at the apex, and completely covering the abdomen. Wings ample. Legs rather short and stout: thighs short and broad: tibiæ curved and broad, narrowed at the base, spurred at the apex, strongly spined outside, the anterior pair very deeply serrated externally: tarsi rather shorter than the tibiæ, slender and 5-jointed, 4 basal joints very short, 5th long and clavate: claws long and curved (5, a fore leg).

CYLINDRICUM *Linn.*—Curtis's Guide, Gen. 136. 1.

In the Author's and other Cabinets.

SYNODENDRON has so much the appearance of a Bostrichus that at first any one would suppose it belonged to that group; but its pentamerous tarsi remove it from them, and its geniculated antennæ show that it is allied to the Lucanidæ. Without a careful examination of the tarsi we may often be misled where the economy of families of different tribes is the same; and this is one of the errors most difficult to be avoided by those who search for a natural arrangement. As both Synodendron and the Bostrichidæ live in timber, a cylindrical form is the most convenient for their habits; and the truncated thorax of the one, and the sloped-off elytra of the other, may serve the same purpose, and probably, by fitting the orifice of the holes they make in the trees, they conceal their burrows and effectually prevent any intruder from entering into their habitations. The legs are compact and the tibiæ armed with spines, to enable them to force their way in a tree; and the dilated and toothed fore legs of the Synodendron are well adapted for throwing behind it the dust and chips which it disengages in its labours.

The larvæ also feed in timber, and are destructive to the Ash, Maple, Apple, Pear and Cherry tree.

S. cylindricum Linn. *Faun. Suec.* 133. 380.—*Curt. Brit. Ent.* 478. ♂

Black shining; head punctured, excepting the crown, hairs on the horn ferruginous; club of antennæ castaneous: front of thorax dull and punctured, excepting a small space towards the top, the rest of the thorax strongly and irregularly punctured, the disc being quite smooth: elytra with 9 or 10 striæ on each, the spaces between rugose with irregular and confluent punctures; tarsi subcastaneous, underside pubescent.

Obs. The horn on the head of the male is sometimes very small, and some females are more strongly punctured on the head and thorax than the males.

This species is confined, I believe, to the North of Europe, and no other one of the genus is known. I have met with it in abundance on old trees in Norfolk, and near Bexley and Darent in June: it has been found at Cheltenham and Plymouth, also in the half-rotten timber of an old Ash tree near Swansea by Mr. Dillwyn. Mr. Dale has found it in old rotten Apple trees at Glanville's Wootton, and he received a very small specimen from Captain Blomer when at Clifton, near Bristol. Mr. Wailes has found it at Newcastle, and the Rev. G. T. Rudd near Kimpton.

The Plant is *Cotyledon Umbilicus* (Common Navelwort).



490.

LUCANUS CERVUS.

The Stag Beetle.

ORDER Coleoptera.

FAM. Lucanidæ.

Type of the Genus, Lucanus Cervus Linn.

LUCANUS Linn., Fab., &c.

Antennæ inserted under a projecting part before the eyes and at the outside of the base of the mandibles, as long as the head, geniculated, slender, capitate and 10-jointed, basal joint as long as the others united, curved and clavate, 2nd joint the smallest, 3 following oblong, 6th rhomboidal, the remainder forming a small compressed club produced internally, the 7th joint being more wedge-shaped than the 8th and 9th, the 10th elongate subovate (6); smaller in the female and all the joints shorter.

Labrum large and exserted, strongly united to the clypeus, subtrigonate with a projecting angle on each side near the middle, densely ciliated towards the apex (1).

Mandibles longer than the head in the male, strong, incurved, acute, with one or two large, and several small teeth on the inside, between the middle and apex (as in the insect represented flying): small in the female with one tooth on the inside (2).

Maxillæ broad and short, with a strong short and hairy internal lobe, and a long lanceolate one densely clothed with hair, which meet when at rest and look like a bifid tongue. *Palpi* long in the male and 4-jointed, basal joint short and curved, 2nd very long and clavate, 3rd short subovate, 4th long and rather thick, subelliptic-clavate (3).

Mentum transverse, somewhat semilenticular. *Lip* and *Palpi* attached to the underside, the former composed of 2 elongated divaricating and hairy lobes, the latter attached to two scapes united to the base of the lip, 3-jointed, basal and 2nd joints of equal length, the former slender the latter stouter, clavate and hairy outside, 3rd joint the longest and stoutest, ovate, clavate: (4 shows the underside of the mentum, &c.)

Head broader than the thorax before, in the male, considerably smaller in the female: eyes lateral, small, the greater portion beneath the head. Thorax broader and more convex in the female: scutellum large trigonate. Elytra ovate, truncated at the base and not touching the thorax. Wings twice as long as the body when expanded. Legs strong: thighs, anterior with a patch of hair on the inside at the base: tibiæ all long and similar in the male with a few spines outside and spurred at the apex; shorter and stouter in the female, the spines stronger, the anterior pair compressed and more dilated externally and furnished with 4 or 5 strong teeth: tarsi long clavate and 5-jointed, 4 basal joints short obovate, 5th long: claws long, curved and acute with a furcate spiny bristle between them (5).

CERVUS Linn. ♂.—inermis Mars. ♀.—Curt. Guide, Gen. 137. 1.

Chestnut colour, thickly punctured, sides of the labrum and angles raised; head thorax and legs black, tarsi subcastaneous.

In the Author's and other Cabinets.

THE Stag-beetle, as the male is generally called, is the largest and most powerful of British Coleoptera, and is able to pinch very severely with its large jaws: it is remarkable, that this power is retained after the separation of the head from the trunk; for I remember Mr. J. Sparshall finding a *Lucanus* that a wagon-wheel had passed over, so as to detach the head, which he took home with him, and the next morning it had sufficient power to pinch his finger.

The Larvæ live in decaying trees, especially the Oak, and are well represented by Roësel, together with the eggs and pupa (v. 2. tab. 4.). *L. Cervus* is rather a local insect, and seems to be most common in Kent and Essex, but it is sometimes found even in the streets of London. Its usual haunts are lanes and the skirts of woods, on the trunks of trees, and it is most abundant the beginning of July. Mr. Dale informs me that "at Bryanston, near Blandford, they were called Branston Bucks in the time of Ray, and are still known by that name: they have been taken near Shrewsbury; on the banks of the Dart, near Ashburton, Devon; at Swansea; in the New Forest; and near Wimborne; on Parley Heath, Dorset; and Brightwell, Berks; from the 6th of June to the 18th of August." The males fly about sunset, and have a singular appearance on the wing: the bodies seem to droop, and the mandibles being stretched out like a neck, give them, at a distance, the appearance of a duck in miniature. They are supposed to subsist by lapping the sap that exudes from the wounds in trees that they make with their mandibles.

Dr. Leach, many years back, having ascertained by dissection that *L. Cervus* was invariably of the male and *L. inermis* of the female sex, he had no longer any doubt of their being one species. I have since taken them paired in the New Forest and in Suffolk; and the difference in the structure of the anterior tibiæ, which are much shorter and more dilated in *L. inermis*, appears to me to be a certain sexual distinction.

L. Dorcas Panz. (*capreolus* Fab.) is a smaller insect, and principally distinguished by the head being narrower than the thorax; but as there are complete series to *L. Cervus*, it can only be considered as a variety.

L. grandis Haw., figured apparently by Roësel, I am disposed to think is a distinct species. I have never seen a British specimen, but all the foreign ones that have come under my observation are distinguished, not only by the great development of the head and trophi, but the projecting angles of the labrum form a straight line, and not a concave one, as in *L. Cervus*.

The insect represented flying is the male, and that walking the female; and the reader will find some amusing observations on the habits of the Stag-beetle, by Mr. Davis and Mr. Waterhouse, in the Entomological Magazine.

The Plant is *Gnaphalium germanicum* (Common Cudweed).



PLATYCERUS CARABOIDES.

ORDER Coleoptera. FAM. Lucanidæ *Lat., Leach.*

Type of the Genus, Lucanus caraboides Linn.

PLATYCERUS *Geoff., Lat., Leach, Gyll.*—*Lucanus Linn., DeG., Fab., Oliv., Marsh.*—*Scarabæus Linn.*

Antennæ inserted under the clypeus, at the base of the mandibles, not so long as the thorax, geniculated, 10-jointed, basal joint very long and subclavate, 2nd small, but longer than the 4 following which are transverse, the 6th being rather broader, the remainder forming a lamellated velvety club, the 7th joint small, the 8th and 9th of equal size, boat-shaped, the 10th large subovate (6).

Labrum small, membranous, entire, concealed beneath the clypeus. *Gyll.*

Mandibles porrected, not so long as the head, slightly curved upward, horny, strong, rounded externally and acute at the apex; the internal margin deeply sinuated, forming several teeth, an emarginate one near the centre being the largest (2).

Maxillæ small, terminated by a minute lobe producing a long pencil of hair, with an internal lobe similarly ciliated. *Palpi* long, 4-jointed, basal joint small curved, 2nd and 4th long, nearly of equal length, the former clavate-truncate, the latter more robust, clavate ovate and terminated by a vesicle, the 3rd joint much shorter (3).

Mentum horny, naked, transverse, semioval, slightly produced in the centre. *Lip* very small and completely hidden; membranous, the apex rounded and ciliated. *Palpi* rather long, naked and triarticulate, basal joint the shortest, 2nd subclavate, 3rd the longest robust, elongate-ovate, slightly curved, with a vesicle at the apex (4).

Head subquadrate, clypeus emarginate. Eyes minute, lateral. Thorax much broader than the head, transverse oblong, the sides margined. Scutellum small triangular. Elytra depressed, long, ovate and margined. Wings ample. Tibiæ spined at the apex, anterior irregularly serrated. Tarsi 5-jointed, all short, excepting the terminal one which is clavate, the basal joint being somewhat concealed by the tibiæ in the 1st pair. Claws simple, bent, acute (5).

CARABOIDES *Linn. Faun. Suec. p. 140. n. 407.*—*Marsh. p. 50. n. 5.*

Smooth, shining, blue sometimes with a greenish tinge. Head and thorax thickly punctured, especially the sides of the latter, and the former is pubescent. Elytra punctured, each having 7 or 8 punctured striæ. Palpi castaneous. Antennæ black. Legs black, inclining to castaneous beneath, as well as the body.

In the Cabinets of Mr. Vigors, Mr. Waring, &c.

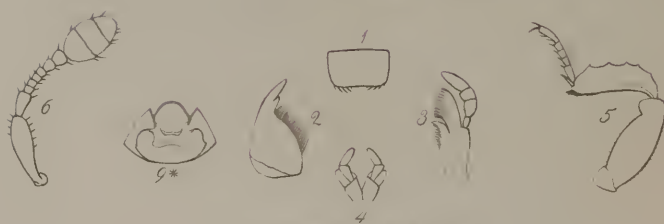
It is remarkable that three species of *Platyceri* should inhabit Sweden, and are found as far south as Germany, whilst in Great Britain one only has been discovered, and that very rarely; whereas upon the Continent it is very abundant.

The *P. caraboides* must, notwithstanding, have appeared in plenty in this country many years back, as specimens were preserved in all the old cabinets, and most of our writers since Berkenhout have described it; but as no authority was given for the examples, Dr. Leach did not consider it to be a native insect, and for the same reason it was not admitted into Mr. Samouelle's "Useful Compendium." It has however again appeared, having been observed in Aberdeen. Mr. Dale has also seen specimens taken by Mr. Waring of Bristol; and Mr. Hope informs me that one specimen was taken on the wing in Oxford.

Continental writers describe it as inhabiting the roots of decayed trees in meadows and thick woods.

The irregular appearance of insects arises from various and sometimes unknown causes; but in a country daily becoming more extensively cultivated, their habitats are frequently annihilated or removed; for many species are so local that they are confined to a single or at most to two or three trees. The *Trichius variabilis* may be quoted as a striking example; it was not known to collectors thirty years back, and is now only found in a few old trees in Windsor Park, where, however, Mr. J. H. Griesbach and his friends are able to take specimens annually; and this gentleman had the good fortune to confirm an insect that had only been recorded as British, (and not perhaps on the best authority,) the *Lymexylon navale*, a female of which he took last July on an oak tree in Windsor Forest.

The plant is *Iberis amara* (Bitter Candy-tuft), for specimens of which I am indebted to Mr. S. Hanson, who gathered them last June near Oxford.



DENDROPHILUS SHEPPARDI.

ORDER Coleoptera. FAM. Histeridæ *Leach*. Byrrhii *Lat*.

Type of the Genus Hister punctatus Ent. Heft.

DENDROPHILUS *Leach, Sam.*—*Hister Linn., Fab., Lat., &c. &c.*

Antennæ inserted on each side the head near the base of the mandibles, slightly geniculated, 11-jointed, basal joint long robust clavate, 2nd shorter clavate, 4 following submoniliform, 7th and 8th larger more robust, the remainder forming an oval pubescent nearly solid club of 3 joints (fig. 6).

Labrum transverse rounded, slightly hairy at the margin (1).

Mandibles small, bent, acute, dilated at the base, ciliated on the internal edge, one with a notch near the apex (2).

Maxillæ with the internal lobe small, the external one ciliated.

Palpi longer than the maxillæ, 4-jointed, basal joint minute, 2 following robust, 4th elongate-ovate (3).

Lip bilobed. *Labial palpi* composed of 2 joints of nearly equal length, 1st clavate, 2nd elongate-ovate (4).

Head small, sunk in the thorax. Thorax transverse, anterior margin beneath produced in the centre (9*). Body depressed but convex. Elytra not quite covering the abdomen. Wings twice as long as the elytra. Tibiæ compressed, with a groove on the outer side to receive the tarsi, anterior dilated, slightly serrated on the external edge, with 2 spurs at the apex; posterior less dilated, with a few short teeth on the external edge. Tarsi contractile, 5-jointed, basal and terminal joints the longest (5, a fore leg).

SHEPPARDI *Kirby's MSS.*

Smooth, not very shining, dull castaneous. Head black, minutely punctured; club of antennæ ferruginous. Thorax vermiculated and punctured under a high power. Scutellum none. Elytra minutely and sparingly punctured (appearing shagreened under a powerful lens), each having one straight and five curved, very shallow striæ, extending the whole length.

In the Cabinet of Mr. Kirby.

DENDROPHILUS was a genus established by Dr. Leach in the 3rd volume of the Zoological Miscellany, where by a typographical error which Mr. Stephens pointed out to me, 3 of

the species are included in the genus *Platysoma*, which ought to contain only the *Hister depressus* Marsh., and *H. oblongus* Fab.

The kindness of my friend the Rev. Wm. Kirby has enabled me to present my readers with a figure and description of an unique and nondescript species, found in the head of a dead snake at Nacton near Ipswich in 1805 by the Rev. Revett Sheppard, in honour of whom it has received its name.

I am happy in having been able to ascertain satisfactorily that it belongs to the genus *Dendrophilus*, of which it is the largest species, and differs in structure from the type only in having the hinder tibiæ a little more dilated.

The following arrangement of our British species may perhaps be found useful.

* Body subglobose

- 1 *D. Sheppardi* Kirby. *Nob.*
- 2 *Curtisii* Leach's *MSS.*
- 3 *punctatus* Ent. *Heft.*, Payk. *Mon. tab.* 7. *f.* 5.—*piceus* Marsh.
- 4 *seminulum* Kirby's *MSS.*

** Body sublinear

- 5 *flavicornis* Herbst, Payk. *t.* 8. *f.* 6.—*minutus* Panz. 93. 3.
- 6 *Milleri* Leach's *MSS.*
- 7 *picipes* Fab., Payk. 8. *z.* Sturm, *tab.* 19. *fig. a.* Panz. 43. 6.—*pygmæus* Marsh.

It may be observed that our genus unites *Abræus* and *Platysoma* Leach, being separated from the former by the produced sternum, and from the latter by the convexity of the upper surface of the body. With regard to the trophi, it will be seen on comparing our plate with those of *Hister* in MacLeay's *Horæ Entomologicæ*, Sturm's *Deutschland's Fauna*, and Paykull's *Monographia Histeroidum*, how greatly they differ from the usual forms exhibited by the family.

The local plant figured, *Iris fœtidissima* (Stinking Flag), was gathered by my friend Mr. Charles Fox at Darent, Kent.



HISTER QUADRIMACULATUS.

The lunar-spotted Mimic-beetle.

ORDER Coleoptera. FAM. Histeridæ.

*Type of the Genus, Hister unicolor Linn.*HISTER Linn., *Fab.*, *Curt.*, &c.—*Attelabus Geoff.*

Antennæ inserted close to the base of the mandibles, often contracted and concealed in a groove beneath the head, short, geniculate and capitate; 11-jointed, basal joint long stout and clavate, 2nd a little longer than the following, somewhat cup-shaped, the 5 following more or less so and increasing in diameter, 8th broader, saucer-shaped, the remainder forming a subglobose velvety club divided irregularly by sutures into three joints, the basal being the largest, the apical the smallest (6).

Labrum somewhat semiorbicular-quadrate, ciliated, frequently not symmetrical (1).

Mandibles porrected, slightly curved, sometimes sinuated on the inside or slightly denticulate, one being densely pubescent on the margin of the inside (2).

Maxillæ terminated by a long lobe, with an internal one below it, both densely pubescent. *Palpi* 4-jointed, basal joint the slenderest, 2nd subobconic, 3rd oblong, 4th the longest, somewhat conical at the apex (3).

Mentum small, semicircular, notched at the middle. *Palpi* rather long, attached to 2 scapes, triarticulate, basal joint minute, 2nd a little longer than the scape, 3rd the longest subconical at the apex. *Labium* rather large and pilose producing a slender spreading lobe on each side thickly ciliated internally (4).

Head small immersed to the eyes. Thorax transverse, convex, semi-ovate, concave before. Scutellum minute. Elytra shorter than the body, subquadrate, rounded or truncated at the apex. Wings ample. Abdomen subtrigonal at the apex. Legs contractile, short flat and broad, the anterior pair approximating at their base, the others remote. Thighs with a groove beneath to receive the Tibiæ which are elongate-trigonal, spined externally and spurred at the apex. Tarsi short compressed and received into a groove on the inside of the tibiæ, 5-jointed, 4 first joints short, 5th longer and clavate.

Claws small (5†, hind leg).

Larva and Pupa figured in *Paykull's Mon. Hist.*

QUADRIMACULATUS Linn.—*Curt. Guide, Gen.* 141. 1.—*lunatus Fab.*

Oblong, black, shining: mandibles rather large and bidentate; tips of antennæ ferruginous: thorax not much narrowed before, with a stria on each side continued round the anterior margin, with another very short one outside, at the anterior angle: elytra with 3 curved striæ on each side and a marginal one deficient at the base, also a longitudinal sanguineous lunule on each side: abdomen thickly punctured at the apex: tibiæ dilated, anterior trigonal with 1 small and 2 large teeth outside, the others spined externally. *Obs.* Sometimes the lunule on the elytra is divided and at others it entirely vanishes.

In the Author's and other Cabinets.

As I cannot see the least resemblance between the Byrrhida and the Histeridæ, except that the legs are contractile, I consider there is no affinity between them, and have placed the latter between the Lucanidæ and the Nitidulæ. Some of the Histeridæ seem to approach the Lucanidæ, not only in æconomy but in figure and the form of the antennæ, and in some the mandibles are strongly developed and very powerful.

The true Histers live principally in dung and dead animals, but as they fly in fine weather, they are found basking in the sun on walls and foot-paths in fields, &c.

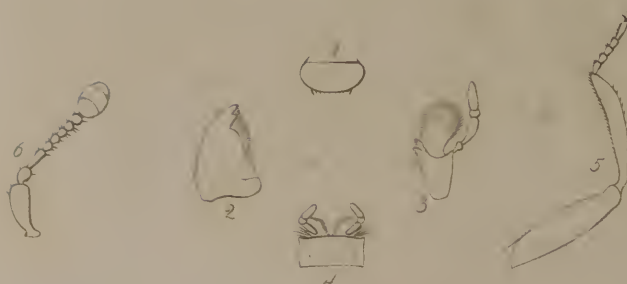
The following are recorded as British species.

1. H. 4-maculatus L.—*Curt. Brit. Ent. pl.* 470.

I purchased an entirely black variety in the Cabinet of the late Mr. E. Blunt, who took it near Southend, where Mr. C. Parsons has also found it, and I am indebted to Mr. W. Clifton for some fine varieties that he took at Pegwell Bay and on the ramparts at Gosport in July and August, in great abundance.

2. unicolor L.—*Pk. Mon. tab.* 2. *f.* 7.—inæqualis Mar.
3. cadaverinus *Pk. t.* 3. *f.* 8.—unicolor *Oliv.*
4. merdarius *Pk. t.* 3. *f.* 1. & *tab.* 1. the trophi, larva and pupa.
- 4^a. Marshami *Ste.* 3. *pl.* 18. *f.* 5.
5. 4-notatus *Ill.*—*Pk. t.* 12. *f.* 3.—4-maculatus F.
6. sinuatus *Pk. t.* 12. *f.* 2.—4-maculatus Mar.
7. 12-striatus *Pk. t.* 3. *f.* 5.—bissexstriatus *Duf.*
8. bimaculatus L.—*Pk. t.* 3. *f.* 6.—erythropterus F.
9. parvus Mar.
- 9^a. corvinus *Germ.*—12-striatus *Duft.*
- 9^b. Nigrita *Ste.*
10. stercorarius *Pk. t.* 4. *f.* 3.
11. neglectus *Meg.*—11^a. Leachii *Ste.*
12. carbonarius *Pk. t.* 3. *f.* 8.—12-striatus F.—impressus F.?
- 12^a. quisquilius *Ste.*—12^b. Kirbii *Ste.*
13. purpurascens F.—*Pk. t.* 3. *f.* 7.—bipustulatus & brunneus Mars. var.
- 13^a. castanipes Kirby.—13^b. caliginosus *Ste.*
14. virescens *Pk. t.* 6. *f.* 7.—14^a. violaceus Mar. 96.
15. metallicus F.—*Pk. t.* 6. *f.* 3.—smaragdinus *Curt.*
- 15^a. semistriatus *Ste.*—16. æneus F.—*Pk. t.* 6. *f.* 6.
17. 4-striatus *Pk. t.* 6. *f.* 5.
18. pulcherrimus *Web.*—speculifer *Lat.*—*Pk. t.* 6. *f.* 4.
19. conjungens *Pk. t.* 6. *f.* 1.
20. nitidulus F.—*Pk. t.* 5. *f.* 3.—semipunctatus *Pk. t.* 4. *f.* 8.

The Plant is *Ornithogalum umbellatum* (Common Bethlehem Star), communicated by W. W. Saunders, Esq., from a meadow near Wimbledon.



Chrysomelidae

ONTHOPHILUS SULCATUS.

ORDER Coleoptera. FAM. Histeridæ *Leach.* Byrrhii *Lat.*

Type of the Genus Hister striatus Fab.

ONTHOPHILUS *Leach, Sam.*—*Hister Forst., Fab., Lat., Payk., Marsh., Sturm.*

Antennæ inserted on each side the crown of the head, before the eyes, geniculated, 11-jointed, basal joint long, robust, subclavate, 2nd subglobose, robust, 3rd longer slender, 5 following submoniliform, the remainder forming a somewhat lenticular pubescent club (6).

Labrum broad, transverse, oval, producing a very few short bristles (1).

Mandibles subtrigonal, coriaceous, internal margin membranous and pubescent, apex emarginate (2).

Maxillæ terminated by a large subovate, pubescent lobe, with a minute bifid one on the inside. *Palpi* rather long, slender and cylindric, basal joint minute, 2nd long curved subclavate, 3rd cupshaped, 4th elongate conic (3).

Mentum broad transverse quadrate. *Lip* short, broad, bilobed, pubescent on the inside, producing a few long threads externally. *Palpi* inserted at the base of the lip, remote, triarticulate, basal joint long slender, 2nd small cupshaped, 3rd more robust oval (4).

Head small. Eyes oblong. Thorax transverse, subtrigonal, anterior margin concave, basal convex, forming an obtuse angle in the centre. Scutellum concealed. Wings very long and ample. Elytra covering nearly the whole abdomen, slightly truncated. Legs long. Tibiæ long, slender compressed, truncated obliquely at the apex, ciliated internally, producing a few obscure spines externally towards the apex. Tarsi long and slender, 5-jointed, joints obovate of equal size, excepting the last which is much longer. Claws simple (5, a fore leg).

SULCATUS *Fab. Ent. Syst. v. 1. pars 1. p. 74. n. 12.*—*Payk. Mon. Hist. p. 99. n. 83.*—*globulosus Oliv.*

Ovate, dull black. Mouth and antennæ, excepting the basal joint, dull ferruginous. Head and thorax punctured, the latter with 5 elevated lines, the central one furcate before and channelled at the base. Elytra with the suture and 3 lines on each very much elevated, the spaces between forming 4 fine ridges, 2 of which are sparingly punctured. Abdomen punctured. Legs slightly inclining to castaneous.

In the Author's and other Cabinets.

It was stated in a recent number (folio 204), that *Micropeplus* appeared to be related to *Onthophilus**, and having now given the generic characters of both, I shall only observe, that the strong resemblance between the antennæ, the maxillary palpi, and even the legs, are evident proofs of their close affinity.

The greatest confusion has existed respecting the two little insects that compose this genus, arising from Fabricius having in his *Entomologia Systematica*, applied to one species synonyms which belonged to the other. Schönherr has, however, with his usual sound judgement rectified these errors, and subsequent writers have availed themselves of his corrections.

Neither of the species recorded being noticed by Gyllenhal, it may be presumed that they are not found in a very northern latitude; in this country the 1st species is very rare, and the 2nd common.

1. *O. sulcatus* *Fab., Nob.*

The first specimen, I believe, that was discovered in Britain of this rare insect was found by myself in a gravel pit on Great Witchingham Heath, Norfolk, the 24th Aug. 1810; from the number of specimens which Dr. Leach possessed, it must have subsequently been taken in plenty; it is stated to inhabit dung and putrid carcases in the spring.

2. *O. striatus* *Forst., Cent.—Gmel.—Marsh.—Fab.—Payk. pl. 11. f. 1.—sulcatus Ross.—Oliv. 1. tab. 1. f. 6.—Sturm. Deut. Faun. pl. 19. f. D.*

This beautifully sculptured little beetle is not uncommon in June and July in the dung of horses on the marshes of Norfolk and various parts of the kingdom. When disturbed it contracts its legs similarly to the *Byrrhi*, and then exactly resembles a seed.

The plant is *Gentiana Amarella* (Autumnal Gentian), communicated by the Rev. Professor Henslow.

* At the folio above referred to it was by accident printed *Onthophagus*.



Done by Charles Smith 1888

MICROPEPLUS TESSERULA.

ORDER Coleoptera. FAM. Silphidæ Leach.

*Type of the Genus Staphylinus porcatus Payk.*MICROPEPLUS Lat., Leach, Sam.—Staphylinus Payk.—Omalium Gyll.
—Nitidula Oliv., Herbst., Marsh.*Antennæ* inserted on each side the nasus, before the eyes, short, capitate, received when at rest, into a cavity of the thorax, 9-jointed, basal joint large, subovate, 2d pear-shaped, 3d slender, the 5 following decreasing in length, the 7th and 8th being turbinate, the 9th forming an ovate pubescent solid club (6).*Labrum* exserted, transverse, rounded, slightly emarginate and pilose in front (1).*Mandibles* rather large, bent, bifid at the apex, the interior margin membranous and pubescent (2).*Maxillæ* small, obscurely bilobed and pubescent at the apex.*Palpi* apparently 4-jointed, basal joint very slender, the remainder forming an elongated conical club, the 1st joint of which is very large, the 2d transverse, and the terminal one slender (3).*Mentum* coriaceous dilated at the base and notched on each side.*Labium* membranous. *Palpi* very short and membranous, triarticulate, rather stout (4).*Head subtrigonal. Eyes small touching the Thorax, which is transverse, broadest at the base, with the angles acute. Scutellum triangular. Elytra quadrate, covering rather more than half the Abdomen, which is acuminate. Wings 2. Legs slender. Coxæ, anterior strong. Thighs rather long. Tibiæ perfectly simple. Tarsi 4-jointed, 3 basal joints minute, 4th long clavate. Claws small (5, a fore leg.)*

TESSERULA Hal. MSS.

Pitchy black, shining, very minutely and thickly punctured. Head depressed and hollowed, with 3 ridges at the base. Thorax with the sides flat, dilated and ferruginous, the angles acute, a broad channel down the centre, a little narrowed beyond the middle, close to which on each side is a fovea. Elytra with 3 elevated lines on each, one being close to the external margin, the interstices perfectly smooth, but very minutely punctured. Abdomen with 5 joints uncovered, side reflexed; slightly carinated down the back with an interrupted elevated line on each side. Legs ferruginous.

In the Cabinet of Mr. Haliday.

At first sight the Micropepli have so much the appearance of the Staphylinidæ, that they might easily be mistaken for a group of that family; we consequently find Gyllenhal including them with the Omalia. Latreille first placed our genus between that family and the Necrophagi, although he has since in the *Familles Naturelles* assigned to it a very different situation; namely, between Cryptophagus and Scaphidium:—upon consulting our characters of the former genus, and the dissections at folio 160, we think that the analogy can no longer be maintained, neither do we believe that it is in any way related to Scaphidium. We have long entertained an opinion that it would be found to unite the Nitidulæ and Histeridæ; for it is undoubtedly related to Cateretes, and is very analogous in habit to the *Nitidula bimaculata* of Olivier; and it is evidently closely allied to *Onthophagus* of Leach, which it resembles in the shape of its antennæ and legs, and even in sculpture.

There are now three distinct species of this genus.

1. *M. porcatus* *Fab., Oliv. 3. tab. 4. f. 33.*—*Marsh.*—sulcatus *Herb. Dej.*

Found in May and June in grassy and sandy places in Norfolk and at Bexley in Kent, and on a fine day in November I once took several upon paling near Barham, Suffolk.

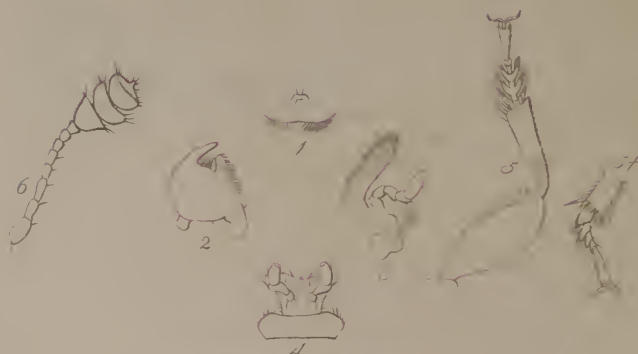
2. *M. Staphylinoides* *Marsh., Gyll.*

From February to June, sandy places; and it has been observed in Ireland flying near dunghills in October.

3. *M. tesseraula* *Hal., Nob.*

The natural size of this minute and curious insect is given by the side of the magnified figure. It was sent to me by the captor, A. Henry Haliday, Esq., with the following memorandum. “Taken out of a pond in a marsh near Belfast, in the County Down, early in February 1827: it was perfectly lively and active when taken.”

The plant is *Alchemilla alpina* (Cinquefoil Lady’s Mantle).



Phryganea curvicauda (Muls.)

STRONGYLUS IMPERIALIS.

ORDER Coleoptera. FAM. Nitidulidæ *Curt.* Necrophagi *Lat.*

Type of the Genus, Nitidula strigata Fab.

STRONGYLUS *Herb., Steph., Curt.*—*Nitidula Fab., Oliv., Marsh., Panz.*
—*Sphæridium Panz.*

Antennæ inserted before and close to the eyes, longer than the head, capitate, 11-jointed, basal joint oblong, more robust than the 7 following which are slender, 2d and 3d joints of equal length, the former the stoutest, 4th and 5th equal but shorter, 6th, 7th, and 8th very short, the latter cup-shaped, the remainder forming a robust club pubescent and pilose, the 9th and 10th joints cup-shaped, the latter rather the shortest, 11th a little smaller and mamillate (6).

Labrum apparently united to the clypeus, which is slightly emarginate and densely pubescent beneath (1).

Mandibles crossing, broad and flat, the apex forming a large tooth, below which on the inside are a few long hairs and an elongated coriaceous margin, lobed above and ciliated (2).

Maxillæ terminated by a very long and pubescent lobe. *Palpi* rather short, 4-jointed, 3 first joints small, nearly of equal size, 3d long almost linear, truncated at the apex (3).

Mentum transverse, the sides convex, anterior margin slightly concave. *Lip* large subquadrate-cordate, the anterior margin pubescent, forming two lobes.

Palpi triarticulate, basal joint minute, 2d short subobtrigonal, 3d longer curved and truncated (4).

Head very broad. Eyes remote lateral small and not prominent. Thorax broad and convex, semioval, the base sinuated, the anterior margin convex in the centre, the angles a little produced, the sides not depressed. Scutellum rather small and triangular. Elytra semioval, being truncated at the base, rounded at the apex, and completely covering the abdomen. Wings very ample. Thighs oval, compressed, with a groove beneath to receive the Tibiæ which are dilated towards the apex, where they are armed with numerous spines, the 4 posterior serrated on the outside with spiny bristles. Tarsi 5-jointed, 3 first joints dilated, somewhat cordiform and clothed with long pubescence on the sides beneath, 4th small and slender, 5th equal in length to the others and clavate. Claws simple. (5, a fore leg : 5†, hind leg).

IMPERIALIS *Fab. Ent. Syst. v. I. pars I. p. 257. n. 10.* *Curtis's Guide, Gen. 148. 2.*—*nebulosa Marsh.*

Pale ferruginous, pubescent, very thickly and minutely punctured, with a few scattered yellow hairs; club of the antennæ (excepting the apex), and base of the head, piceous: disc of the thorax piceous, the posterior outline very much sinuated and leaving a broad ferruginous margin: elytra variegated with 5 or 6 ochreous and 4 piceous spots, the lower one forming a large crescent.

In the Author's and other Cabinets.

THE true *Strongyli* are distinguished by the tip of the antennæ being mamillate, and the elytra entirely cover the body.

1. *S. strigatus* *Fab. E. S.* 1. 257. 9. *Ol. v.* 2. *No.* 12. *pl.* 2. *f.* 12.

Panz. 83. 4.—*undata* *Mar.*—*imperialis* *Ste. pl.* 16. *f.* 5.

Length two lines: minutely, thickly, and regularly punctured, slightly pubescent, ferruginous, base of head and a great portion of the disc of the thorax piceous: elytra piceous, excepting the margin and near the scutellum, a sublunular ochreous mark at the base of each, with a dot on the outside and a lunulate mark below the middle, sinuated on the upper margin. Taken in March, under bark of trees, Coombe Wood.

2. *S. imperialis* *Fab. Curtis B. E. pl.* 339.

As Olivier's *N. undata* (*pl.* 3. *f.* 17.) agrees in size with this species, it probably may be a variety of it, otherwise I should consider it an immature specimen of *S. strigata*.

I am indebted to Mr. J. H. Griesbach for a specimen of this insect for dissection; it was taken by him with the former species out of an old oak-tree in Windsor Park, the end of last August, together with *Nitidula 10-guttata* and *Trinodes hirtus*.

3. *S.?* *fervida* *Oliv. 2. No.* 12. *pl.* 4. *f.* 32.

"It resembles *Nitidula estivalis*, but it is a little larger: the antennæ and head are ferruginous, a little obscure: the body is ferruginous: the elytra are finely punctured, a little obscure at the extremity: the feet are the colour of the body." *Oliv. 2. p.* 15. Taken in the neighbourhood of London in June.

4. *S. luteus* *Fab. Marsh.* 73. 36. *Oliv. v.* 2. *No.* 12. *pl.* 3. *f.* 28. *Panz.* 83. 3.—*Boleti* *Sam.*

Two to two and a half lines long: castaneous, sericeous, very thickly punctured: antennæ with the basal joint robust, the club rather elongated, compressed and fuscous: eyes black: elytra not quite covering the abdomen, with a large subtrigonal fuscous spot on each, with an eneous tint: tarsi dilated. Some specimens are nearly ochraceous.

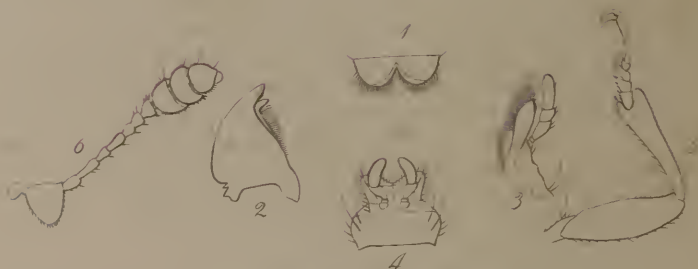
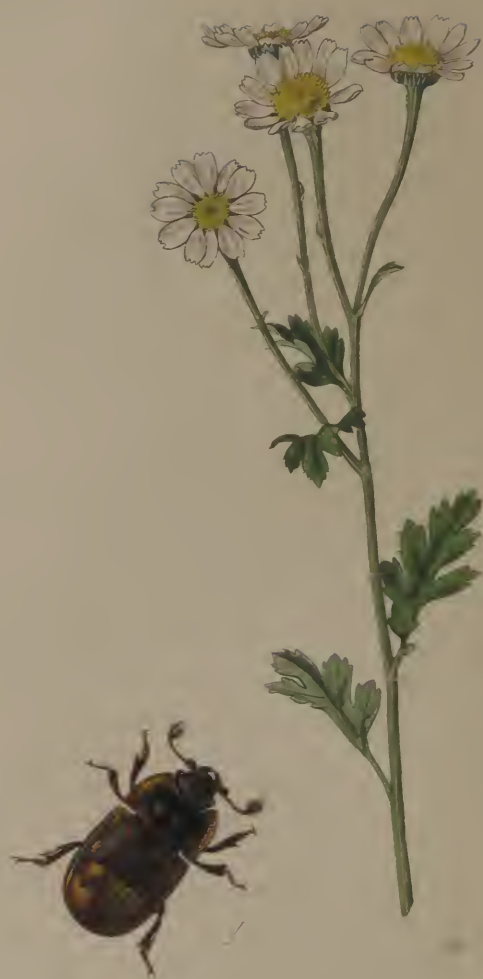
This insect is found in June, in the flowers of the White-thorn, &c.: it forms the genus *Cychramus* of Kugellan and *Campta* of Kirby; the slender antennæ and narrow club resemble those of *Strongylus*, but the apical joint is not mamillate.

5. *S. ferrugineus* *Fab. Panz.* 84. 2.—*striata* *Oliv. 2. 12. pl.* 1. *f.* 7.—*fulva* *Marsh.* 136. 21.

Length two and a quarter lines: ferruginous, clothed with hairs: antennæ blackish at the apex, the basal joint robust, the club compressed and ovate: head and thorax marked with fine and coarse punctures: elytra with nine rows of strong punctures on each, with a line of yellow hairs between them: abdomen projecting a little beyond the elytra: anterior tarsi alone slightly thickened at the base.

June, Fungi Costessy Park Norfolk; in young plants of *Lycoperdon Bovista* in August, in ripe ones in winter. The smaller head and more prominent eyes of this insect distinguish it from the true *Strongyli*, and in the form of the antennæ it approaches *Nitidula*. It is the genus *Ostoma* of Laichart.

The plant is *Buxus sempervirens* (Box-tree).



Chrysomelidae

675.

NITIDULA COLON.

ORDER Coleoptera. FAM. Nitidulidæ *Curt.* Necrophagi *Lat.**Type of the Genus, Silpha grisea Linn.*NITIDULA *Fab., Oliv., Lat., Panz., Gyll., Curt.*—*Silpha Linn.*

Antennæ inserted on each side of the clypeus, a little longer than the head, capitate, pubescent, slightly pilose and 11-jointed, basal joint large, semiovalate, being produced internally, 2nd obovalate and stouter than the 3rd, which is longer than the 5 following; 4th sometimes shorter than the 5th; 6th and 7th subglobose, 8th stouter, cup-shaped, the remainder forming a stout ovalate club; 9th and 10th joints bowl-shaped, 11th orbicular, a little pointed, with a gland or membrane at the apex (6). *Labrum* transverse, semiovalate, bilobed, being deeply notched in the centre and densely ciliated (1).

Mandibles produced, strong, elongate-trigonalate, the apex furnished with 2 strong teeth, ciliated on the inside (2).

Maxillæ terminating in an elongated, ovalate, densely ciliated lobe. *Palpi* not much longer, 4-jointed, basal joint minute, 2nd obovalate truncate, 3rd shorter, subquadrate, 4th the longest, linear, the apex rounded and furnished with a gland (3).

Mentum transverse-ovalate, the base and anterior margin straight, sides pilose. *Lip* broad, forming 2 rounded hairy lobes. *Palpi* inserted at the base, not remote, attached to small scapes, triarticulate, basal joint minute, 2nd elongate-obtrigonalate, 3rd the largest, oval and a little curved (4).

Head rather broad: clypeus narrowed: eyes small but often prominent.

Thorax much broader than the head, transverse, semiorbicular, base nearly straight, the angles acute, sides margined, anterior angles often forming 2 trigonalate lobes: scutell triangular. Elytra slightly convex, semielliptic, the base truncated, the apex rounded and covering the abdomen. Wings ample. Legs rather short: thighs stoutish: tibiae compressed, dilated at the apex and furnished with short spurs, the posterior with several spines at the apex: tarsi 5-jointed, 4 basal joints short and hairy beneath, 3 first dilated and bilobed in the anterior pair in the males, 1st joint attached to the side, nearly concealed, 2nd subquadrate, 3rd truncated obliquely, 4th cup-shaped, more quadrate in the hinder pair, 5th very long, clavate: claws stout and curved (5, a fore leg).

Larvæ depressed, spiny, tapering to the apex which is furcate; pectoral feet six.

COLON *Linn.*—*Curt. Guide, Gen.* 149. 11.

Thickly and minutely punctured and sparingly clothed with short depressed hairs, dark dull reddish brown; head blackish, mouth and antennæ ferruginous, club brown; thorax with several foveæ on the disc, the margins ferruginous; elytra with the basal half dark, more or less maculated with deep ochre, the apical half ochreous, bearing a dark transverse mark more or less divided. *Obs.* I have a *var.* entirely fulvous, with paler spots on the elytra.

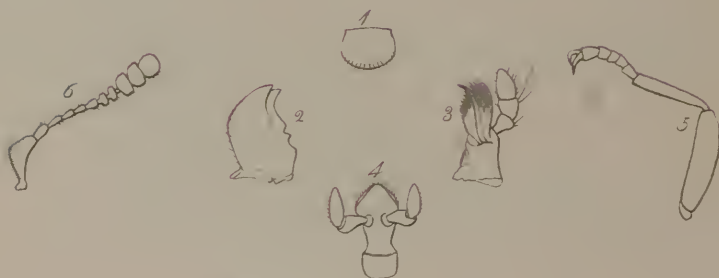
In the Author's and other Cabinets.

NITIDULA was incorporated by Linnæus with *Silpha*, from which it is readily distinguished; it is nearly related to *Strongylus*, pl. 339, but the shape of the antennæ and trophi vary considerably, and it differs completely from *Thymalus* (pl. 39) in all these particulars, and especially in wanting the internal claw to the maxillæ.

There are very remarkable differences in the œconomy of this group, some living upon the pollen of the sweetest flowers, and others delighting in dead carcasses, putrid Boleti and old bones. They are distributed over the whole globe, but Europe seems to be their metropolis, and England is rich in species, as will appear by the following list:

1. *decemguttata* *Fab.* Olivier's fig. referred to in the "Illustrations" does not agree with this species.
2. *oblonga* *Herb. col. v. 5. pl. 54. f. 4.*
3. *pallescens* *Step. 5. 406.*
4. *Silacea* *Herb. 5. pl. 53. f. 3.*
5. *æstiva* *Linn.—Oliv. v. 2. no. 12. pl. 3. f. 23.*
6. *villosa* *Thunb.—depressa* *Ill.—æstiva* *Fab.—Panz. 84. 7.*
7. *affinis* *Mars.—Ste. 3. 40.*
8. *melanocephala* *Mars. 136. 22.*
9. *4-pustulata* *Fab.—Ste. pl. 16. f. 4.—variata* *Ste. 3. 36. 10. var.?*
10. *obsoleta* *Gyl.—unicolor* *Oliv. 2. pl. 2. f. 9. var.*
11. *variegata* *Herb. 5. pl. 54. f. 3?*
12. *fuscicollis* *Water.—Ste. 5. 406.*
13. *impressa* *Kirb.—Ste. 3. 39.*
14. *pusilla* *Ill.—Gyl. 1. 227. 15.*
15. *truncata* *Kirb.—Ste. 3. 39.*
16. *rufipes* *Linn.—obscura* *Fab.—Oliv. 2. pl. 1. f. 3.*
17. *bipustulata* *Linn.—Panz. 3. 10.*
18. *pygmæa* *Gyl. 1. 225. 13.*
19. *limbata* *Fab.—Oliv. 2. pl. 3. f. 18.*
20. *rufomarginata* *Dav.—Ste. 3. 41.*
21. *discoidea* *Fab.—Panz. 83. 5.—Sam. pl. 2. f. 5.*
22. *Colon* *Linn.—Curt. B. E. pl. 675.—hæmorrhoidalis* *Fab. var.*
23. *depressa* *Linn.—sordida* *Fab.—varia* *Oliv. pl. 2. f. 10.*
24. *grisea* *Linn.—Trans. Linn. Soc. v. 1. pl. 5. f. 6—11. varia* *Fab.—Panz. 105. 2.*
25. *punctatissima* *Panz. 25. 7.*
26. *marginata* *Fab.—biloba* *Panz. 35. 10.*

The Plant is *Pyrethrum Parthenium*, Common Feverfew.



Family I. B. London Oct 1 1874

THYMALUS LIMBATUS.

ORDER Coleoptera. FAM. Silphadæ *Leach*. Necrophagi *Lat*.

Type of the Genus Cassida limbata Fab.

THYMALUS *Lat*. Silpha *Linn*. Cassida, Peltis *Fab*.

Antennæ inserted before the eyes, short, 11-jointed, first joint the longest, clavate, second short and robust, third, fourth and fifth somewhat cylindric, sixth, seventh and eighth, somewhat turbinate, the three last large, forming a compressed perfoliated club, the ninth and tenth joints being transverse, the eleventh orbicular. (6.)

Labrum exserted, nearly oval, the posterior margin straight. (1.) *Mandibles* exserted, bifid at the apex, sometimes dentated internally towards the middle. (2.)

Maxillæ membranaceous, with a corneous arcuated tooth, external process short, curved inward, strongly ciliated and clothed with hair towards the apex : *Palpi* short and robust, 3-jointed, terminal joint subovate. (3.)

Mentum small, quadrate : *Palpi* 2-jointed : *Lip* large, broader than the mentum, entire, superior margin ciliated. (4.)

Head small, nearly concealed by the thorax, which is emarginate before and broad behind ; the sides being margined. Scutellum small. Elytra viewed together with the thorax elliptic, margined, much broader than the abdomen, which they completely conceal. Wings 2. Feet short, without spines. Tarsi indistinctly 5-jointed, all simple.

LIMBATUS *Fab. Ent. Syst. v. 1. pars 1. p. 294. n. 11. Syst. Eleu. v. 1. p. 344. n. 4.*

Pubescent, shining, reddish brown with a slight cupreous cast, the margins of the thorax and elytra appearing brighter. Legs and under side reddish brown. Thorax minutely punctured. Abdomen with numerous longitudinal lines of deep punctures.

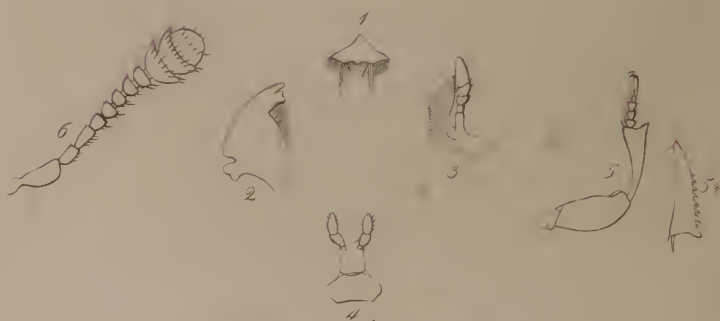
In the Author's and other Cabinets.

THE remarkable habit of our insect, which is so similar to that of *Cassida* as to have led Fabricius to consider it as belonging to that Genus in his earlier works, an error however which he corrected in his *Systema Eleuteratorum*, has induced the Baron Dejean and other Entomologists to separate it from *Peltis* ; and it is now the only true *Thymalus* known, *Peltis* retaining the other four species (*grossa*, *ferruginea* *Fab. &c.*),

none of which have been yet met with in this country, although by accident *P. ferrugineus* was given as the type of *Thymalus* in Samouelle's 'Entomologist's Useful Compendium.

Thymalus limbatus is another valuable Genus added to our Fauna by Mr. D. Bydder, who took it in the New Forest in abundance during the months of June and July. It appears to be generally distributed in that neighbourhood, as I have since met with it occasionally in June near Brockenhurst and Lyndhurst. Upon stripping off the bark of decayed trees, the insect will generally be found adhering to it like a Coccus or a scale, from which circumstance we are led to believe that like many of the *Nitidulæ* it feeds upon *Boleti*, *Fungi*, &c. especially such as are found in similar situations: they no doubt at particular periods are to be found also in flowers, as Fabricius gives an Italian plant, the *Dianthus Carthusianorum*, as their habitat, and Mr. Ingpen found a single specimen upon a flower in Kent, during the present year.

Boletus versicolor (Changeable Boletus) is given with the insect.



Del. by J. L. Leconte. Sculp. by J. H. Leconte.

IPS QUADRIPUNCTATA.

ORDER Coleoptera. FAM. Nitidulidæ *Curt.* Necrophagi *Lat.*

Type of the Genus, Dermestes ferrugineus Linn.

Ips *Fab.*, *Herb.*, *Panz.*, *Gyll.*—*Nitidula Lat.*, *Oliv.*, *Marsh.*—*Dermestes & Silpha Linn.*

Antennæ inserted before the eyes, as long as the head, capitate, pilose, 11-jointed, basal joint the longest robust subovate, 2nd short oblong, 3rd longer, the 5 following sub-perfoliate, increasing in diameter, cup-shaped; the remainder forming a compressed club, clothed with a few hairs, the 9th and 10th joints being bowl-shaped, the 11th semiorbicular (6).

Labrum concealed under the clypeus, horny trigonate, the margin sinuated and densely ciliated, excepting a small space in the centre, on each side of which are 3 long hairs (1).

Mandibles large, curved externally, the apex produced, oblique and emarginated, in one forming a tooth with a broader one slightly notched, the space below membranous and thickly clothed with hair (2.)

Maxillæ short at the base, but produced above into a long and broad sublanceolate lobe, densely clothed with very short pubescence on the inside, external process none. *Palpi* not much longer than the lobe, and attached to a horny process, 4-jointed, basal joint minute, the others robust, 2nd and 3rd cup-shaped, 4th subovate (3).

Mentum transverse-octagonal, anterior margin concave. *Labium* oblong and horny, terminated by 2 short membranous lobes, near the base of which arise the *Palpi* formed of 3 joints, the basal one minute, 2nd and 3rd robust, the former obovate-truncate, the latter ovate (4).

Head nearly as broad as the thorax at the base. Eyes lateral, small and not prominent. Thorax subquadrate or transverse. Scutellum small and triangular. Elytra slightly convex oblong truncate not covering the abdomen. Wings very ample. Legs short, similar. Thighs incrassated. Tibiæ very much dilated and compressed at the apex, spurred; middle pair serrated with short spines on the outer edge (5*); posterior pair with only 2 or 3 spines. Tarsi attached near the inner angle of the tibiæ, 5-jointed, 3 first joints robust, 4th minute, 5th long and slender. Claws simple (5).

QUADRIPUNCTATA *Herbst.*—*Oliv. v. 2. n° 12. pl. 3. f. 19.*—*Curtis's Guide, Genus 151.*

Broad subovate, shining black, finely punctured. Antennæ castaneous, club piceous. Head subtrigonate, nearly as broad as the Thorax at the base, this is transverse, and nearly as broad as the elytra, but a little narrowed before. Elytra with 2 small orange-coloured spots on each, one near the base and another towards the apex. Legs dull castaneous.

In the Author's and other Cabinets.

As the Ipes may be easily distinguished from the Nitidulæ by their more convex form and quadrate thorax, I shall not at present enter further into their distinctive characters: it may be observed, however, that they are dissimilar in their œconomy; for whilst the former live under the bark of trees, the latter (with few exceptions) are either found in the bones or skins of dead animals, or in the flowers of plants. As there is only one species of our genus described in English works, I shall subjoin the characters of all the species found in these islands.

1. *I. ferruginea* Linn. *F. S. n.* 433.—Payk.—Fab.—dermestoides Panz. 8. 15.—linearis Lat.

Linear, elongated, pale ferruginous, shining, strongly and thickly punctured. Thorax not broader at the base than before. Scutellum minute. Elytra linear.

It was not known to be British until I took 2 specimens near Norwich, many years since, in the month of May: specimens were subsequently taken in Norfolk by Mr. Brightwell and Mr. Sparshall, and I have received others from Mr. R. Wood of Manchester. It is found under the bark of dead Pine-trees.

2. *I. 4-pustulata* Linn. *F. S. n.* 446.—Oliv. v. 2. n° 12. pl. 3. f. 22.—Marsh. p. 130.

Generally larger than the following. Linear-elongate, somewhat depressed, black, punctured. Thorax transverse-quadrate, each elytron with 2 reddish spots, the anterior one sinuated trilobed, the other a little beyond the middle transverse ovate. Tarsi piceous.

This rare insect lives under the bark of Birch and Sallow-trees; it has been taken at Bexley by Mr. Samouelle, in the decayed stumps of trees, in September; it is found also in May, July, and August.

3. *I. 4-guttata* Fab.—Panz. 3. 18.—Oliv. 2. n° 12. pl. 3. f. 25.

Generally smaller and narrower than the following; black, shining, and rather minutely but not very thickly punctured. Elytra with 2 stramineous marks on each; one at the shoulder semilunar with the margin sinuated; the other towards the apex, transverse-ovate, strangulated in the centre. Antennæ and legs castaneous, the club of the former piceous.

This I believe was first taken by Mr. D. Bydder in May 1815, in the New Forest, upon felled Oaks, where the sap exuded.

4. *I. 4-punctata* Herb.—Curtis Brit. Ent. pl. 306.

Taken at the same time and place as the last species.

The plant is *Senecio viscosus* (Stinking Groundsel).



MYCETÆA HIRTA.

ORDER Coleoptera.

FAM. Engidæ?

Type of the Genus, Silpha hirta Mars.

MYCETÆA Kirby, Ste.—Atomaria Curt.—Cryptophagus Gyl.—Silpha Mars.

Antennæ inserted in a cavity before the eyes, longer than the head, capitate, hairy and 11-jointed, basal joint stout and ovate, 2nd rather shorter and slenderer but similar in form, 6 following very slender, the 3rd nearly as long as the 2nd; 4th and 5th shorter and oblong, 6th, 7th and 8th moniliform, the remainder forming a distinctly articulated club, the 9th joint being the smallest and subglobose, 10th semiovate, 11th the largest and suborbicular (1).

Labrum hairy, orbicular, and truncated at the base (1).

Mandibles subtrigonal, with 2 minute teeth at the apex, the internal edge excavated and covered by a thin margin ciliated above (2).

Maxillæ with a long narrow pointed lobe on the inside, with some strong curved bristles towards the apex, external lobe articulated, broader and ovate, ciliated with long bristles at the apex. *Palpi* rather short, stout and 4-jointed, basal joint minute, 2nd large subpyriform, 3rd cup-shaped, 4th the longest pear-shaped (3).

Mentum subtrigonal, truncated before. *Lip* not broader than the anterior portion of the mentum, ciliated. *Palpi* short, stout and triarticulate, basal joint small, 2nd and 3rd of equal size, the former somewhat cup-shaped, the latter subovate (4).

Head *transverse*, clypeus *narrowed and a little produced*: eyes *rather remote and coarsely granulated*. Thorax *broader than the head, transverse, anterior margin convex, the angles produced but obtuse, posterior margin convex at the centre, the angles rectangular, sides broadly margined*: scutellum *minute and rounded*. Elytra *broader than the thorax*. Wings *not formed for flight, very long and narrow, with only one nervure, obtuse at the apex (W)*. Thighs *thick*: tibiae *simple*: tarsi *long, 4-jointed, two basal joints of equal length and very hairy beneath, 3rd small, 4th equal in length to the others, clavate*: claws *small and simple* (5, hind leg).

Obs. *The description and dissections are drawn from the species figured.*

HIRTA Mars.—Curt. Guide, Gen. 154^a.

Ovate, shining, ferruginous-ochre, pilose; eyes black; head minutely punctured: thorax sparingly clothed with long bristly hairs and coarsely punctured, with an elevated line on each side, forming with the anterior margin a semicircle, and leaving a broad margin on each side, narrowest at the base, with a short impressed line on each side: elytra coarsely punctured, forming striæ producing series of long elevated hairs with smaller ones between them: wings tipped with yellow: antennæ and legs ochreous.

In the Author's and other Cabinets.

OUR insect is the *Silpha hirta* of Marsham, the *Cryptophagus hirtus* of Gyllenhal, and the *Atomaria hirta* of the Guide and of Stephens's Catalogue: his figure of *Mycetæa fumata* looks like a rubbed specimen of *hirta*, but it is impossible to ascertain from his synonyms what he means, for *two insects* of *different genera* are given as *one species**; and in his description of *Atomaria hirta* he has not noticed the most remarkable character, the thickened margins of the thorax.

M. hirta sometimes occurs in considerable numbers in cellars, and is found in the corks of the bottles, which are frequently so much perforated by various insects as to allow the wine to escape. From several corks, and bottles partially empty, sent to me for inspection by Dr. Henderson, whose elegant "History of Ancient and Modern Wines" is so justly celebrated, I formed an opinion that the little beetle figured was sometimes introduced into the cellar in the corks themselves; and that gentleman corroborated such an opinion by his own observation, that those corks were often very much affected that were apparently perfectly protected externally by the wax with which they were covered, and in such cases it appeared impossible for the beetles to have gained access to the corks from the outside. I am induced to believe, however, that these beetles feed upon a minute Acarus, or Mite, that is generally found with them, and that the great damage done to the corks is occasioned by the larvæ of a Moth.

I am informed by Mr. F. Walker that *M. hirta* is found all the year round at Southgate on the paling and posts surrounding hay-stacks, and that by laying bricks on the hay they congregate in great numbers beneath them, attracted seemingly by the warmth and moisture; it is far from improbable, therefore, that they may be introduced into wine-cellars with the hay and sawdust.

The Plant represents the female Common Hop (*Humulus Lupulus*).

* The *Dermestes fumatus* of Marsham, which is a *Mycetæa*, and the *Dermestes fumatus* of Linnæus, which is nearly allied to *Triphyllus*, as shown in the Guide, and two years before in the 4th Vol. of this Work.



ANTHEROPHAGUS SIMILIS.

ORDER Coleoptera. FAM. Engidæ?—Silphidæ Leach.

Type of the Genus, Tenebrio pallens Linn.

ANTHEROPHAGUS Meg., Curt.—Cryptophagus Gyll.—Mycetophagus Fab.—Tenebrio Linn., Mars.—Silpha Mars.

Antennæ inserted before the eyes, close to the base of the mandibles, longer than the head, generally robust, clavate, pilose, 11-jointed, basal joint large, globose, the base narrowed and capitate, 7 following joints stout and somewhat cup-shaped, gradually increasing in size, the remainder forming a subovate club, 9th and 10th joints being cup-shaped, the 11th very pubescent, narrower and ovate-conic (6).

Labrum suborbicular, truncated at the base, the angles projecting a little, anterior margin entire, ciliated and producing a few long bristles (1).

Mandibles exerted, rather large curved, bifid towards the apex, one being more angulated externally and serrated on the inside (2*), with a deep internal circular excavation, forming an acute angle above and a rounded protuberance below, a little ciliated (2).

Maxillæ bilobed and densely pubescent at the apex, internal lobe long and slender with several curved spines towards the apex, the other lobe longer broader and ovate. *Palpi* stout pubescent and 4-jointed, basal joint the slenderest, notched externally, 2nd and 3rd broad somewhat obovate, 3rd slender and conical (3).

Mentum transverse, narrowed before, the angles lobed and the centre a little produced. *Lip* rather large, the angles forming ciliated rounded lobes, the centre convex and pilose at the apex.

Palpi triarticulate, basal joint somewhat chalice-shaped, 2nd semi-ovate, 3rd the longest fusiform-conic, the apex glandular (4).

Head rather large, semiovate: eyes small and lateral. Thorax transverse-oblong: scutellum transverse-ovate. Elytra somewhat elongate-ovate. Wings ample. Legs rather short and stout: thighs subelliptic: tibiæ short, compressed and clavate: tarsi short, cushioned beneath, 5-jointed, first 4 joints more or less dilated in the males? subquadrate-ovate, 5th long and sublinear (5), posterior pair 4-jointed in the males? (†) first 3 joints somewhat oblong: claws long bent and acute.

SIMILIS.—Curt. Guide, Gen. 155.

In the Author's Cabinet.

Of this genus, which makes a very near approach to Cryptophagus (pl. 160), there are many specimens that are heteromorous, and they are suspected by Gyllenhal to be the males, but if such be the case I have never seen that sex of No. 1.

The following have been recorded as British:

1. A. silaceus Herb.—nigricornis Fab.—castanea Mars.

Female? $2\frac{1}{2}$ lines long: elongate-ovate, silky, ferruginous-ochre, thickly and minutely punctured: antennæ rather

slender, subcastaneous, 2nd joint piceous, the apex palest: tips of mandibles and base of tibiæ piceous: thorax transverse: elytra with a deep channel on each side the suture, not reaching the scutellum, and 9 or 10 obscurely punctured striæ.

Taken the beginning of July and end of August on Umbelliferæ by Mr. Haliday: it has also been captured near Hertford and Oxford.

2. *A. pallens* Linn., Mars.

Male? $2\frac{1}{2}$ lines long: somewhat oblong and slightly depressed, ochreous, silky, thickly and minutely punctured: antennæ stout and castaneous, excepting the basal joint and apex: tips of mandibles and base of tibiæ and tarsi of the same colour or piceous; basal joints of the latter stout: thorax slightly transverse-quadrate: elytra with a channel on each side the suture beyond the middle, and 9 or 10 slightly punctured striæ.

Not uncommon on umbelliferous flowers in June in Norfolk, Oxford, and Devon, and Mr. Dale has found it at Stafford in Dorset, 2nd September: it is less ovate and convex than No. 1, the thorax is more quadrate, the antennæ and base of tarsi are stout, and the latter are dark except at the apex.

3. *A. similis* Curt. Brit. Ent. pl. 546.

Female? Length $1\frac{2}{3}$ line: similar in form to No. 2; ochreous, head and thorax a little ferruginous and rather strongly and thickly punctured, the latter transverse: antennæ moderately stout and castaneous, the club lighter: elytra silky, minutely punctured with the striæ very obscure: tarsi all 5-jointed, base of the tibiæ slightly castaneous.

Male? Length $1\frac{3}{4}$ line: ferruginous, antennæ rather stout and inclining to piceous, excepting the base and apex: tibiæ piceous, chestnut at the base, posterior tarsi 4-jointed.

This, which may be the male of *A. similis*, appears to be the *C. pallens* of Gyllenhal. The small size and strongly punctured head and thorax sufficiently distinguish these insects from the foregoing species, and the female has the legs of one colour.

They were taken the middle of July in Umbelliferæ near Dover.

4. *A. glaber* Gyll. vol. 1. p. 178. n. 15.

From 1 to $1\frac{1}{2}$ line long. "Oblong-ovate, reddish-testaceous, smooth, somewhat depressed; thorax transverse, emarginate before. A little broader than *Cryptophagus cellaris*, but not longer: all the tarsi 5-jointed." Gyll.

I have never seen a British specimen of this insect which has been found in the nests of *Bombus muscorum* in Sweden.

The Plant is *Sinapis alba* (White Mustard), communicated by J. J. Bennett, Esq.

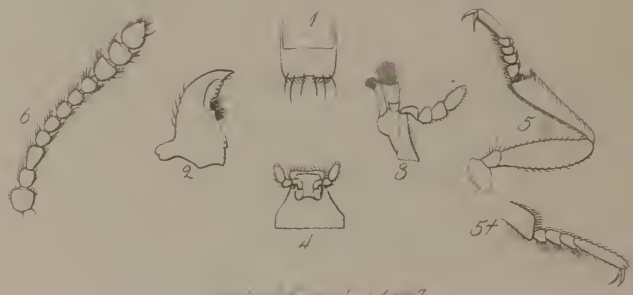


Illustration of the beetle and its parts.

CRYPTOPHAGUS POPULI.

ORDER Coleoptera. FAM. Silphidæ *Leach*. Necrophagi *Lat*.

Type of the Genus Cryptophagus Populi Gyll.

CRYPTOPHAGUS *Herbst.*, *Payk.*, *Gyll.*, *Leach.*—*Ips Oliv.*, *Lat.*—*Corticaria Marsh.*—*Dermestes Linn.*, *Fab.*, *Panz.*

Antennæ not very distant, robust, very pilose, punctured; inserted before the eyes, being attached by a posterior angle of the basal joint which is large and globose, 2nd smaller globose, 3rd the longest clavate, 5 following globose, smaller than the 2nd, the remainder forming a club, the 2 first joints cup-shaped, 3rd conical (fig. 6).

Labrum small transverse-quadrate, slightly emarginate and ciliated, producing also a few bristles (1).

Mandibles bent, produced externally at the base, the internal margin crenated towards the apex, which is bifid, with a notch and a bundle of hair lower down (2).

Maxillæ small bilobed, internal lobe narrow, external broader, both thickly clothed with hair at the apex. *Palpi* short, robust, pubescent, 4-jointed; basal joint slender bent, 2nd and 3rd cup-shaped, 4th elongate-ovate, terminated by a vesicle (3).

Mentum quadrate at the base, narrowed anteriorly, deeply emarginate and slightly produced in the centre. *Lip* coriaceous quadrate, with a dilated membranous ciliated margin. *Palpi* small, inserted upon the lip, 3-jointed, pilose, 1st joint bent, 2nd trigonate, 3rd elongate-ovate, with a vesicle (4).

Head trigonate, immersed up to the Eyes, which are remote and small.

Thorax suborbicular, generally with the sides dentated or crenated.

Scutellum transverse-ovate. Elytra elongate-ovate. Wings ample.

Legs small. *Tibiæ* simple, anterior dilated a little at the apex and producing a few short bristles. *Tarsi* simple 5-jointed, terminal joint long; the posterior pair in the females? being only 4-jointed (5†).

Claws simple. *Pulvilli* none (5, a fore leg).

POPULI *Payk. Faun.* 3. 355. 4.—*Gyll. Ins. Suec. t. 1. pars 1. p. 165. n. 1.*

Castaneous, shining, punctured, pubescent. Head and antennæ blackish castaneous, coarsely punctured, producing short ochraceous pubescence. Eyes black. Thorax suborbicular, convex, strongly punctured, clothed with short decumbent pubescence, forming a ridge down the middle; margin narrow, produced at the anterior angles and slightly towards the base; a slight impression on each side at the base. Elytra piceous, gradually shaded into a castaneous margin, irregularly and minutely punctured, covered with ochraceous pubescence. Legs clothed with ochraceous pubescence. Underside ochraceous.

Var. β. entirely ochraceous; antennæ, head and thorax, slightly inclining to castaneous.

In the Author's and other Cabinets.

ACCORDING to our late view of the *Silphidæ*, *Cryptophagus* will follow *Mycetophagus*, to the 2nd division of which (viz. *Triphyllus*) it is nearly related; and *Antherophagus* is certainly closely allied, one sex having only 4 joints in the posterior pair of tarsi: *C. Typhæ* Gyll. being more related to *Byturus*, will either be added to that, or must constitute a new genus.

The following is the arrangement we propose of the British species: but it is necessary to remark, that we have had no opportunity of examining No. 9, and we are not positive respecting Nos. 4, 7 and 8, not having been able to get a clear view of the posterior tarsi.

1. *C. bituberculatus* Kirby's Mss. End of September, in puff-balls.
2. *Populi* Payk. August, September, October, in decayed poplars. I once took this insect in abundance in an old post near Norwich.
3. *fumatus* Marsh. 110. 12.—Gyll. In houses.
4. *Lycoperdi* Fab., Gyll.—*Fungorum* Panz. 39. 14.—*Corticaria rufa* Marsh. Inhabits *Lycoperdon Bovista*, Latticed puff-ball.
5. *affinis*.
6. *cellaris* Fab., Oliv. 2. tab. 1. fig. a, b.—*Scanicus* Linn.? —*denticulata* Marsh. August, September, October; under bark, and in houses.
7. *serratus* Gyll. 1. 171. 7. August, September, October; under bark, and in female flowers of salallows.
8. *Ulicis* Kirby's Mss.
9. *Abietis* Payk.—*Vini* Panz. 40. 14?—*obcordata* Marsh. From spring to autumn; in the leaves of the spruce-fir.

The local plant figured, *Lathræa squamaria* (Great Toothwort), we found in abundance the end of April near Glanville's Wootton, Dorset.



2



3



6



5



4

BYTURUS TOMENTOSUS.

The Raspberry-beetle.

ORDER Coleoptera. FAM. Nitidulidæ?

*Type of the Genus, Dermestes tomentosus Fab.*BYTURUS *Lat., Curt.*—*Dermestes Fab., Panz., Mars., Gyll.*—*Ips Oliv.*

Antennæ inserted on each side the clypeus before the eyes, not longer than the thorax, clavate, pubescent, 11-jointed, 2 basal joints stout, 1st pear-shaped truncated, 2nd shorter, 3 following elongate-obovate, 3rd the slenderest, 6th short obovate, 7th cup-shaped, the remainder forming a perfoliate club, the 8th joint being small and bowl-shaped, 9th and 10th the same shape but large, 11th subtrigonal slightly cordate (6).

Labrum inserted under the clypeus, submembranous, pocket-shaped, pubescent and ciliated with strong bristles (1).

Mandibles sublunate, being curved and acute, hairy outside, with a transparent lobe inside, the upper portion very pubescent (2).

Maxillæ small, linear, terminated by 2 very hairy lobes, the internal one narrow and elongated, the other maxillæform. *Palpi* rather stout, slightly pubescent and 4-jointed, basal joint small, 2nd and 3rd of equal length, the former inflated, the latter clavate, 4th the longest, subfusiform, the apex obtuse (3).

Mentum semiorbicular, anterior margin deeply excavated. *Lip* subquadrate, the anterior portion very much dilated, forming 2 divaricating hairy membranous lobes. *Palpi* smaller than the maxillary, inserted at the base of the lobes, pubescent, triarticulate, basal joint small, 2nd elliptical, 3rd the longest and stoutest, subfusiform obtuse (4).

Head drooping, subtrigonal: eyes small lateral and prominent. Thorax transverse, convex, truncated and narrowed before, base bisinuated, the angles pointed: scutellum subovate: elytra elongate-ovate, convex and covering the body: wings ample. Legs short: thighs elliptical: tibiæ rather slender, with short spines at the apex: tarsi 5-jointed, pubescent beneath, basal joint small, 2nd and 3rd with membranous appendages, bilobed, 4th minute, 5th long and clavate: claws long, curved, acute, recurved at the base. (5 a fore leg, † apex of tibia and tarsus of hind leg.)

TOMENTOSUS *Fab.*—*Curt. Guide, Gen. 157. 1.*

Black, clothed with short yellowish-white pubescence giving it a slate colour; thickly and minutely punctured: mouth antennæ and legs ochraceous; elytra with very indistinct punctured striæ. The variety called *flavescens* is entirely deep ochreous with black eyes.

In the Author's and other Cabinets.

BYTURUS is evidently allied to the Engidæ; it bears a considerable resemblance also to Biphyllus, and in habit it is like a Dermestes.

B. tomentosus varies so much in colour that it has been described under several names; those which are entirely fulvous have been called *fumatus* by Fab. and *flavescens* by Marsham, and this may be the *Silpha testacea* of Linnæus.

The fulvous-coloured specimens are generally the most common, and are found in Scotland and every part of England probably, where the White-thorn and Raspberry, or even the Bramble, are found. It is many years since I first observed that these little beetles were much attached to the flowers of the Haw-thorn, and when these dropped off I found they resorted to the young Raspberry blossoms. I believe the maggots we so frequently find in the fruit are the larvæ of this beetle, which eat their way into the bud, where they lay their eggs, which seem to be hatched about the time the fruit is set: it is therefore to them I attribute the not unfrequent failure of our Raspberry crops, the greater part of which is thus often injured or destroyed.

Messrs. Kirby and Spence say that the footstalks of the blossom of the raspberry are occasionally eaten through by the *Dermestes tomentosus*, and they once saw it prove fatal to a whole crop; the same authors have frequently seen *Dermestes flavescens* eat both the petals and stamens of *Stellaria holostea* (pl. 130.).

These beetles inhabit also the flowers of the Rose: Gyllenhal says they live in those of *Rubus Idæus* and *fruticosus*, and that *B. fumatus* (the variety) inhabits the flowers of the Bird-cherry and the Mountain Ash; and Latreille informs us that they are particularly attached to the flowers of the Ranunculi.

The Plant is *Rubus Idæus*, the Raspberry bush.

702



TYPHÆA FUMATA.

ORDER Coleoptera.

FAM. Engidæ?

Type of the Genus, Dermestes fumatus Linn.

TYPHÆA *Kirb., Curt.*—*Silpha Mars.*—*Mycetophagus Fab.*—*Dermestes Linn.*

Antennæ inserted on each side of the head before the eyes, not so long as the thorax, pilose, clavate and 11-jointed, basal joint stout and ovate, 3 following somewhat slender, oblong, 2nd rather the stoutest, 5th obovate, 6th and 7th subglobose, the remainder forming a distinctly articulated club, 8th and 2 following cup-shaped, the former the smallest, terminal joint orbicular (6).

Labrum transverse-ovate, pilose, anterior margin slightly concave (1).

Mandibles very convex externally, with a deep notch towards the base, apex acute, one with an acute tooth below (2), and a membranous margin.

Maxillæ small, with a linear bristly lobe on the inside, and a semiorbicular one on the outside, very pilose. *Palpi* much longer, rather stout, pubescent and 4-jointed, basal joint minute, 2nd and 3rd somewhat obtrigonal, 4th as long as the others united, elliptical (3).

Mentum subquadrate, anterior angles rounded, sides concave and pilose, the base a little dilated. *Lip* transverse-ovate, ciliated. *Palpi* attached to small scapes at the base, remote, triarticulate, basal joint subpyriform-truncate, 2nd the longest and stoutest, ovate, 3rd small, subglobose (4).

Head trigonate, apex obtuse: eyes remote, small, globose and placed on each side of the base of the head. Thorax transverse, convex, narrowed a little anteriorly, the sides and angles rounded: scutellum rather broad and subtrigonal. Elytra long and elliptical, the apex rounded: wings ample. Legs rather short: thighs short, stoutish and compressed: tibiae compressed, dilated towards the apex, spurred, bristly, especially externally: tarsi rather long, 4-jointed, anterior pair triarticulate in the males (5), very hairy beneath, basal joint longer than the 2nd, which is ovate-truncate in the anterior, 3rd the shortest in the other feet, terminal joint very long and scarcely clavate: claws rather long and slender (†, hind leg).

FUMATA *Linn.?*—*Curt. Guide, Gen. 156. 3.*

In the Author's and other Cabinets.

TYPHÆA like *Mycetophagus* (fol. 156) has 4-jointed tarsi, the anterior being only triarticulate in the males; the club of the antennæ however, composed of 3 or at most of 4 joints, sufficiently distinguishes it; but from *Triphyllus* I believe it is only separated by the length and form of the terminal joint of the palpi, so that it is doubtful if it be entitled to the rank of a genus.

1. *ferruginea* Marsh. 125. 31.

Club of antennæ triarticulate. Elongate-ovate, ochreous, pubescent and coarsely punctured: thorax convex, with a deepish fovea on each side at the base: scutel transverse-ovate: elytra considerably broader than the thorax, especially across the middle, the shoulders slightly elevated: length $1\frac{1}{2}$ line.

The trophi are nearly the same as those of the type, but the antennæ vary, the 4th joint being shorter than the 5th; the 7th and 8th are of equal size, and none of the tarsi are triarticulate in the specimens I have examined.

June, common in Boleti in Norfolk, and under the bark of trees, with varieties of the following species.

2. *Sparganii* Leach. *Step.*

“Oblong-ovate, ferruginous-ochre, somewhat pubescent, base of elytra, margin and suture fuscous-black: $1\frac{1}{4}$ line long.” *Step. Ill.*

I suspect this is only a variety of the foregoing species, which Dr. Leach found at Cobham on the *Sparganium* (pl. 436).

3. *fumata* Linn.?—Curt. *B. E. pl.* 702 ♂.—*testacea* *Step.*—*to-mentosa* *Step. var.*

Shining ferruginous, minutely punctured and clothed with longish depressed ochreous hairs: eyes black: elytra a little scabrous, with indistinctly punctured striæ, the ochreous hairs raised and forming a distinct line down each stria.

Not uncommon, I believe, in houses in Norfolk during the winter months: it is stated also to frequent flowers, rotten wood, and fungi in the neighbourhood of London: the variety was found in Yorkshire. As Linnæus refers to Geoffroy, who says his insect is $\frac{1}{2}$ a line long or even less, I do not feel satisfied of the identity of our insect with the Linnaean species, and yet I am still inclined to believe they are the same.

The Plant is *Typha angustifolia*, Less Reed-mace.

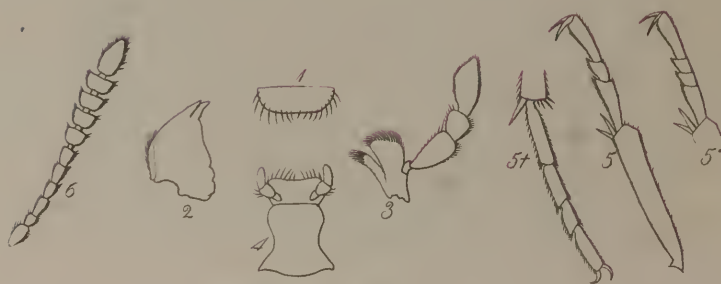


Fig. 1-7. C. 1887

MYCETOPHAGUS PICEUS.

ORDER Coleoptera. FAM. Mycetophagidæ Leach. Xylophagi Lat.

Type of the Genus Chrysomela 4-pustulata Linn.

MYCETOPHAGUS Fab., Oliv., Panz., Lat., Gyll.—Tritoma Geoff.—Boletaria Marsh.—Ips Fab.—Carabus, Chrysomela Linn.

Antennæ inserted before the eyes, on each side the head, more or less clavate, very pubescent, 11-jointed, basal joint obovate, 2nd small, 4 following of nearly equal length, increasing in diameter, the remainder more robust, cup-shaped and forming a perfoliated club, the terminal joint elongate-ovate (fig. 6).

Labrum exserted, transverse, anterior margin rounded and ciliated (1).

Mandibles small and broad, bifid at the apex, internal margin thin, sinuated (2).

Maxillæ small bilobed, coarsely ciliated, internal lobe narrow, external one large. *Palpi* long, porrected, very robust, pubescent, 4-jointed, basal joint minute, 2nd long clavate, 3rd subtrigonal, 4th large subovate, truncated obliquely, being slightly acuminate (3).

Mentum somewhat cup-shaped, being narrowed in the middle.

Palpi short, robust, slightly pilose, 3-jointed, inserted towards the base of the labium, basal joint the smallest, 2nd trigonate, 3rd ovate. *Labium* transverse-cordate, ciliated (4).

Clypeus slightly produced. *Eyes* small prominent. *Thorax* transverse, convex, broadest at the posterior margin which is sinuated. *Scutellum* distinct. *Wings* ample. *Body* oval, slightly convex. *Tibiæ* simple, with a pair of small spurs at the apex on the internal side. *Tarsi*, anterior 3-jointed in the males (5), the basal and terminal joints long, of equal length; 4-jointed in the females (5); remainder 4-jointed in both sexes, the basal joint the longest. *Claws* simple. *Pulvilli* none (5 †, a hind leg).

PICEUS Fab. Mant. Ins. 1. 46. 11. Panz. 1. 22. & 2. 7. Ent. Syst. v. 1. pars 2. p. 499. n. 9.—undulata Marsh. 140. 6.—rufa Marsh.

lunaris Fab.—brunneus Panz. 57. 21.—variabilis Gyll. 3. 390.

Dull castaneous, thickly clothed with very short pubescence. Head piceous punctured; clypeus ferruginous; eyes black. Thorax punctured, posterior angles not very obtuse, a fovea on each side at the base. Elytra rather rough with 10 punctured striæ on each; the margin, a large irregular spot on each shoulder, a spot on each side, an interrupted sinuated fascia a little below the middle, and a round spot near the apex of each elytron, ochraceous, the pubescence covering them of the same colour. Antennæ palest at their base. Legs pale ferruginous. Beneath dull castaneous.

In the Author's and other Cabinets.

OUR genus having been separated from *Ips* by Fabricius as early as the year 1792, the name he has applied to it of *Mycetophagus* has a prior claim to that of *Tritoma* published by Geoffroy five years after, which, it is to be regretted, Fabricius has misapplied, by designating a tetramerous insect by it.

We cannot help expressing some surprise, that out of the many systems that have been proposed, none should have released *Mycetophagus* from its present unnatural situation: viz. from the *Xylophagi* or *Trogossitarii* of Latreille; for, admitting that the 3-jointed tarsus of the male is a mere exception (there is not a rudiment even of a 4th, indeed the length of the basal joint is equivalent to the first 2 in the other sex), it surely would better associate with *Tritoma* and *Triplax* at the end of the same section. Upon comparing, however, the trophi and antennæ of our genus with those of *Tetratoma* (plate 123), we trust that it will be admitted that there is not only a great resemblance but an absolute affinity, which must conduct *Mycetophagus* to *Tetratoma*, and both probably to the *Silphadæ* of Leach, according to our view given in the folio accompanying the plate above alluded to; for my opinion is daily strengthened that the organs of manducation, in the *Coleoptera* at least, will form the most natural divisions for families, and that the antennæ alone will frequently supply the best generic characters.

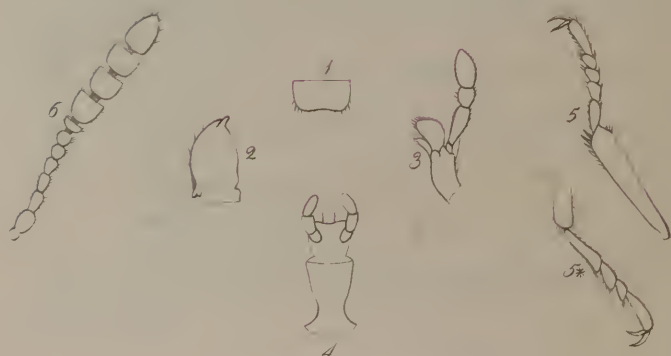
The following are indigenous insects, and have been all illustrated by Panzer; we have therefore selected the one that has not been figured in any British work: it is a variety of the female. All the species are found in dry boleti from March to October.

1. M. 4-pustulatus *Linn.*, *Don.* 6. 185. 2.—4-maculatus *Fab.*, *Panz.* 12. 9.
2. piceus *Fab.*
3. atomarius *Fab.*, *Don.* 15. 538. 2. *Panz.* 12. 10.
4. multipunctatus *Fab.*, *Don.* 15. 538. 1. *Panz.* 12. 11.
—varia & similis *Marsh.* are varieties.

The following have only 3 joints of the antennæ incrossated, tarsi the same as the others: they form the genus *Triphyllus* *Meg.*, *Dej.*

5. bifasciatus *Lat.*, *Gyl.*, *Panz.* 2. 24.—signatus *Panz.* 57. 20.
6. fumatus—*Dermestes* *Linn.*—*Cryptophagus variabilis* *Payk.*
7. ferrugineus *Marsh.* 125. 31.
8. punctatus *Fab.*, *Panz.* 12. 12.—humeralis *Marsh.*, *Don.* 15. 538. 3.

The plant appears to be *Boletus* (*Leccinum* *Micheli*) *subtomentosus* *Linn.*



Carabus (Cicindela) campestris L.

TETRATOMA ANCORA.

ORDER Coleoptera. FAM. Diaperidæ *Leach*. Diaperiales *Lat*.

Type of the Genus Tetratoma Fungorum Fab.

TETRATOMA *Herbst., Fab., Payk., Panz.*—Boletaria *Marsh.*—Ips *Thunb.*

Antennæ inserted on each side the head at the anterior margin of the eyes, clavate, 11-jointed, basal joint globular, 2nd and 3rd subovate, 3 following subglobose, 7th transverse, cup-shaped, the remainder forming an elongated, perfoliated hairy club, the 3 first joints being nearly quadrate, the terminal one conic (fig. 6). *Labrum* exserted, transverse, slightly emarginate, anterior angles rounded, with a few short bristles (1).

Mandibles porrected, small and broad, bifid at the apex, very thin at the internal edge (2).

Maxillæ small bilobed, ciliated, the internal one narrow, the external large. *Palpi* long, very robust, pubescent, 4-jointed, basal joint very minute, 2nd long clavate, 3rd obovate truncate, 4th ovate-conic (3).

Mentum long, cup-shaped, being dilated at the base, and slightly anteriorly. *Palpi* short, robust, naked, 3-jointed, arising near the centre of the labium, basal joint the smallest, 2nd obovate-truncate, 3rd oval. *Labium* heart-shaped, with two bristles near the middle, truncate behind (4).

Clypeus produced in front. *Eyes* small, prominent. *Thorax* transverse, convex rounded. *Elytra* elongate-ovate, convex. *Scutellum* distinct. *Wings* ample. *Body* oblong convex, that of the female having a retractile tube terminated by 2 styles. *Legs*, 1st and 2nd pair with the tarsi 5-jointed (5); posterior pair the longest, tarsi 4-jointed, the basal joint being as long as the 2 first united, in the others (5*). *Tibiæ* simple, with a pair of small spurs at the apex on the internal side. *Claws* simple.

ANCORA *Fab. Ent. Syst. v. 1. pars 2. p. 508. n. 2.*—*Gyll. Ins. Suec. v. 2. p. 555. n. 2.*

Pale ferruginous, with an aureous cast, shining, irregularly punctured. Head coarsely punctured. Eyes black. *Antennæ* darkest at their extremity. *Thorax* coarsely punctured with a fovea on each side upon the posterior margin, which is slightly sinuated. *Elytra* brassy-yellow coarsely and sparingly punctured, with a large obscure brown spot on each side the scutellum, a dark brown sinuated fascia across the centre, interrupted next the suture, obscure towards the apex. *Abdomen* beneath and pectus reddish brown. *Tarsi* ferruginous.

In the Cabinets of Mr. Bennett, Mr. Walker, and Mr. Bentley.

THE tarsal system will compel those who follow it implicitly, to place *Tetratoma* very far from *Mycetophagus*: if, however, we follow relations of affinity or pay any regard to natural arrangement, we think they must come together and associate with *Tritoma* and *Triplax*.—In their economy they are all similar, and the 2 former genera approach in form, texture, and in the structure of their antennæ and palpi: it is true that one has the posterior pair of tarsi only, with 4 joints, whilst the intermediate as well as the posterior pair of the other have no more; but this surely can never justify their being placed far asunder, especially when we see that the males of *Mycetophagus* have but three joints in the anterior tarsi, which upon that principle would be as good a reason for removing it to the end of the *Tetramera*, instead of forcing it upon the *Xylophagi*, as the five-jointed anterior tarsi of our genus is to place it amongst the *Heteromera*.

It appears to us that a very natural combination may be established leading from the *Silphadæ* to the *Nitidulæ* in the following manner: 1. *Phosphuga*; 2. *Choleva*; 3. *Mylæchus*; 4. *Agyrtes*; 5. *Scaphidium*; 6. *Scaphiosoma*; 7. *Leiodes*; 8. *Agathidium*; 9. *Phalacrus*; 10. *Atomaria*; 11. *Tritoma*; 12. *Diaperis*; 13. *Triplax*; 14. *Tetratoma*; 15. *Mycetophagus*; 16. *Cryptophagus*; 17. *Meligethes*; 18. *Engis*; 19. *Ips*; 20. *Colobicus*; 21. *Peltis*; 22. *Thymalus*; 23. *Nitidula*. As, however, nothing but dissection can satisfy our minds with regard to absolute affinities, we cannot attempt at present to prove the correctness of our assumption.

The rare species represented in the plate has not hitherto been recorded as a native of Britain: the specimen figured was kindly communicated by E. T. Bennett, Esq., who captured it at Colney-Hatch, 27th May 1824: we have since been favoured with the sight of another, taken early in the year out of moss at Southgate, by Mr. Francis Walker; and a third I believe was found by Mr. Bentley in a similar habitat at Epping Forest.

Our other species, *Tetratoma Fungorum* Fab. (*Boletaria bicolor* Marsham) is less rare, and is figured in Panzer's *Faun. Germ. fasc. 9. pl. 10*. They are both found in the summer in Fungi at the roots of trees, and in winter they secrete themselves in moss.

Agaricus flavipes? Persoon (Yellow-stalked Agaric) is figured in the plate.



TRIPLAX ÆNEA.

ORDER Coleoptera.

FAM. Tritomidæ.

*Type of the Genus, Silpha russica Linn.*TRIPLAX Payk., *Fab.*, *Curt.*—Tritoma Lat.—Silpha Linn.—Ips *Fab.*

Antennæ inserted before the eyes on each side of the clypeus, as long as the head and thorax, clavate, pubescent, 11-jointed, basal joint oval and stouter than the 7 following, 2nd subglobose, 3rd and 4th longer obovate, 3 following short ovate, 8th a little stouter and more globose, the remainder forming a compressed club, 9th and 10th joints somewhat cup-shaped, the former a little the longest, terminal joint the largest, suborbicular (6).

Labrum transverse, semiovalate, membranous and emarginate before, ciliated and hairy (1).

Mandibles short, broad and subtrigonal, very convex outside, bifid at the apex, somewhat notched beneath, with a small tuft of hairs; the margin membranous below (2).

Maxillæ slender, with a narrow hooked lobe inside, and a broader and rounded one outside, both ciliated. *Palpi* rather large, securiform and 4-jointed, basal joint rather long and clavate, 2nd and 3rd short, ovate-truncate, 4th large semiorbicular, attached at the centre, the apex thick (3).

Mentum short. *Labium* short, narrowed anteriorly. *Palpi* short stout, slightly securiform, inserted close together near the apex of the labium, triarticulate, basal joint small, pyriform-truncate, 2nd stout obovate-truncate, 3rd the longest orbicular-truncate (4).

Head rather broad, subtrigonal, rounded before: eyes lateral, placed near the base, globose. Thorax transverse, convex, slightly narrowed before, anterior margin concave, the angles acutish, sides with a narrow margin, base bisinuated: scutellum transverse-ovate. Elytra broader than the thorax, convex, long and elliptical. Wings larger than the elytra. Legs short and compressed: thighs short: tibiae, considerably dilated towards the apex, which is truncated obliquely: tarsi all 5-jointed, 3 basal joints short 3rd, the broadest and deeply emarginate to receive the 4th which is minute and subglobose, 5th long and clavate: claws small and hooked (5†, a hind leg).

ÆNEA *Fab.*—*Curt. Guide, Gen.* 161. 1.*In the Author's and other Cabinets.*

DISSIMILAR as Triplax and Tritoma are in habit, the structure of their trophi, antennæ, and tarsi is so similar, that no doubt can be entertained of their close affinity, and Latreille and Dejean have even united them in one genus; yet Mr. Stephens places Triplax with the Engidæ, stating that the

tarsi are 4-jointed, and *Tritoma* at a remote station amongst the *Anisotomidæ*. *Triplax* like *Tritoma* has distinctly pentamerous tarsi, although the 4th joint is small; and according to the view I took at fol. 498 of types of form, both genera would associate with the *Chrysomelidæ*; but until the *Engidæ* and neighbouring groups are fully investigated, I shall refrain from offering any further remarks as to the location of this difficult tribe.

The following are British species of *Triplax*.

1. *ænea* *Fab.*—*Curt. Brit. Ent., pl.* 706.

Very smooth and shining; orange-ochre; antennæ piceous, eyes black: head and thorax sparingly and irregularly, but strongly punctured, the latter margined at the base; elytra bright deep blue with a slight green tinge, with closely punctured striæ and minute punctures on the interstices.

On the trunk of a Holly tree in the New Forest the beginning of June, J. C.; on decayed willows and in fungi in abundance at Ockbrook, the Rev. L. Hey.

2. *rufipes* *Fab. Panz.* 13. 17.

Black, head thorax and legs orange-ochre, antennæ ochreous, club piceous, head thorax and elytra rather thickly punctured, the latter with punctured striæ also: length $1\frac{3}{4}$ line.

Coomb-wood, on dead trees, in August.

3. *bicolor* *Mars. Ahr.* 12. 16.

Oblong, rufous, entirely rufous beneath; elytra black; antennæ piceous, rufous at the base: length 2 lines.

Coomb-wood in June, and Cambridgeshire.

4. *ruficollis* *Dej. ? Step. Ill. pl.* 17. f. 6.

"Black, thorax and legs rufous, antennæ rusty-castaneous: $2\frac{1}{4}$ lines."

Taken once near Windsor.

5. *russica* *Linn.*—*nigripennis* *Fab. Panz.* 50, 7.—*S. castanea* *Marsh.*, with a yellow head and thorax and castaneous elytra, is according to Stephens a small immature *var.*

Orange-ochre; eyes black; postpectus blue-black; scutel and elytra inky black, antennæ piceous; head and thorax with strong scattered punctures; elytra with faintly punctured striæ, the interstices minutely punctured: length $2\frac{3}{4}$.

Several in boleti at the foot of an ash-tree at Ditchingham in Norfolk, in April; on the trunk of a tree in the New Forest in June, and under bark in winter.

The plant is *Carex divisa*, Bracteate Marsh Carex, from Ryde, communicated by Dr. Bromfield.



Neottia (Epipactis) atrorubens -
4. 5. 11. 8

TRITOMA BIPUSTULATUM.

ORDER Coleoptera. FAM. Tritomidæ.—Diaperiales Lat.

TRITOMA Fab., Lat., Curt.—Dermastes Mars.

Antennæ inserted in a cavity close to the inner margin of the eyes and the clypeus, not much longer than the head, capitate, 11-jointed, basal joint stout and ovate, 2nd suborbicular, 3rd the longest, slender, the 3 following short of equal length, subovate, 7th rather stouter, subpyriform, 8th cup-shaped, the remainder forming a compressed pubescent club, 9th and 10th joints crescent-shaped, 11th smaller and of similar form, tuberculated at the apex (6).

Labrum attached under the clypeus, semiorbicular, emarginate in front and ciliated (1).

Mandibles subquadrate, pointed, one bifid at the apex, with a notch on the inside covered by a thick ciliated membrane (2).

Maxillæ terminated by 2 hairy lobes, the internal one linear, the external articulated, narrow at the base and dilated towards the apex. *Palpi* large, 4-jointed, basal joint rather long, a little narrowed at the base, 2nd and 3rd much broader and cup-shaped, 4th very large, compressed and semiorbicular, being truncated and appearing spoon-shaped when dry (3).

Mentum subquadrate, the sides rounded, tricuspidate before.

Lip narrower, suborbicular and slightly pilose. *Palpi* rather stout, but much shorter than the maxillary, triarticulate, basal joint the smallest, 2nd more robust and cup-shaped, 3rd ovate-truncate, with a long bristle outside (4).

Head rather small and somewhat trigonate: eyes small and lateral.

Thorax transverse, narrowed and concave before, slightly produced over the scutellum which is rather small and trigonate. Elytra much broader than the thorax and subovate, the disc slightly elevated. Wings ample. Legs, hinder pair scarcely larger than the others: thighs short and rather stout: tibiæ compressed and very much dilated towards the apex, with one or two spines on the internal angle, and serrated externally: tarsi 5-jointed, 3 first joints rather dilated, and very pubescent beneath, basal joint a little longer than the 2nd which is subcordate, 3rd ovate, cup-shaped, 4th small, inserted in the cup of the 3rd; 5th long, slightly clavate: claws simple (5, a fore leg).

BIPUSTULATUM Fab.—Curt. Guide, Gen. 162. 1.—humeralis Mars.

Black, shining, sparingly punctured; palpi ferruginous, antennæ more ochreous with the club rather dusky: elytra with 8 punctured striæ on each, and a large red spot more or less lunated at the base, sometimes with a black spot on the shoulder: tarsi, and base and tips of tibiæ ferruginous.

In the Author's and other Cabinets.

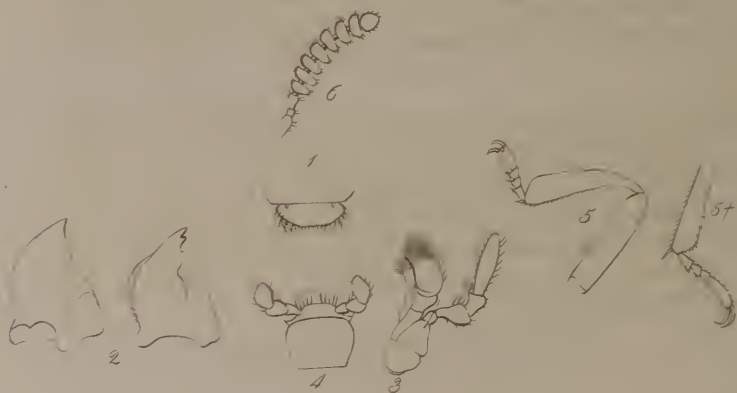
THE name of *Tritoma*, which was so happily applied by Geoffroy to *Mycetophagus 4-punctatus*, has been most egregiously employed by Fabricius to designate this genus of pentamerous insects. No one that I am aware of has ever observed that *Tritoma* has five distinct joints in all the tarsi; for although the *Anisotomidæ* are associated with the pentamerous insects in the "Illustrations," it is stated in the characters, that the tarsi of *Tritoma* are 4-jointed, and that the *penultimate joint is bifid*.

Tritoma is one of those insects that closely resembles several genera belonging to groups placed very far from each other, which it would seem to unite; but on a more minute examination it differs so considerably from all of them in structure, that its proper situation is rendered very uncertain.

There may be objections to the tarsal system, and undoubtedly many exceptions occur in it; nevertheless, if it were well investigated, it might after all offer fewer difficulties than any other. It seems to me that amongst the *Coleoptera* there are 4 distinct types: the 1st may be represented by *Cicindela*, having an active Larva, which, as well as the Imago, is carnivorous; the external lobe of the maxillæ is palpiform, the tarsi 5-jointed, the 4th joint if any bilobed: the 2nd is the *Heteromera*, of which *Tenebrio* is a type; the Larva is not active nor carnivorous, the external lobe of the maxillæ is not palpiform, the mandibles have a notch on the inside covered with a strong sometimes fleshy membrane, and the hinder tarsi are 4-jointed, the basal joint generally long: the 3rd has *Curculio* for its type, which has an inactive maggot-shaped Larva, generally feeding on fibrous vegetable or leaves; the Imago has a rostriform head, and the maxillæ have no external lobe: the 4th may be characterized by *Chrysomela*, whose Larva is not very active; it, as well as the Imago, feeds on vegetables; the tarsi are 4- or 5-jointed with the 3rd joint bifid or dilated. Whether the above outline be founded in truth or not, I may safely add that until all the types of form have been carefully examined and their trophi, antennæ and tarsi accurately delineated, we shall look in vain for materials to found a natural system of arrangement.

T. bipustulatum has been taken in profusion at Coombe-wood in the month of March, in Boleti, by Mr. Samouelle; it is found also in April, May and June, when I once discovered a puff-ball in the New Forest almost filled with specimens; it inhabits also the *Auricularia Tabacino*, and has occurred in Darent Wood and Richmond Park.

The Plant is *Epipactis Nidus avis* (Bird's-nest Orchis), gathered last June in Bagley Wood, Oxford.



DIAPERIS BOLETI.

ORDER Coleoptera. FAM. Diaperidæ.

Type of the Genus, Chrysomela Boleti Linn.

DIAPERIS Geof., Fab., Ol., Lat., Panz., Sam.—Tenebrio DeG.—Chrysomela Linn., Marsh.

Antennæ inserted before the eyes, at the base of the mandibles, not longer than the thorax, robust, pubescent, compressed, 11-jointed, 3 basal joints slender, the 1st the longest, cylindric, 2nd minute, 3rd obtrigonal, the remainder somewhat bowl-shaped and remote, the terminal joint orbicular-ovate (6).

Labrum transverse, semioval, producing spiny bristles at the anterior margin (1).

Mandibles alike subtrigonal, slightly bifid at the apex, the internal margin with a large notch filled with a callous membrane, appearing different when reversed (2).

Maxillæ rather long, internal lobe slender and terminated by a brush of strong curved hairs; external articulated, broad and thickly clothed with long hairs at the apex. *Palpi* robust, sparingly pubescent, 4-jointed, basal joint small, 2nd and 3rd short and broad, narrowed at the base, 4th long subfusiform (3).

Mentum suborbicular, truncated at the base. *Lip* short and broad, producing a few long hairs before. *Palpi* short and thick, triarticulate, basal joint small and slender, 2nd subtrigonal, 3rd the largest subovate (4).

Head small: clypeus semicircular and depressed, produced into lobes over the Eyes, which are lateral. Thorax convex, transverse, narrowed anteriorly, sides with a narrow margin, slightly lobed over the Scutellum, which is small and triangular. Elytra hemispherical, being very convex above. Legs compressed. Thighs broader than the Tibiæ, the latter with short spines at the apex, the posterior pair serrated externally towards the apex. Tarsi simple, rather short, 5-jointed (5), posterior pair 4-jointed (5+), anterior the shortest, terminal joint the longest. Claws bent and acute.

BOLETI Linn. Faun. Suec. p. 165. n. 527.—Curtis's Guide, Gen. 163. 1.

Black, shining, very convex; head and thorax rather thickly punctured, the former concave in front, with a semicircular impression at the base of the clypeus: elytra minutely and sparingly punctured, with 9 punctured striæ on each; the base, an interrupted fascia across the middle (both having the margins deeply sinuated), and a spot at the apex, orange: mouth and legs pitchy castaneous.

In the Author's and other Cabinets.

THE species that constitute this genus vary considerably in form, and even in structure; the terminal joint of the palpi being elongated and cylindric in some, and obtrigonalate or ovate-truncate in others: in *D. Boleti* the basal joint of the anterior pair of tarsi is extremely minute and concealed in the cavity of the tibia, whilst in the middle pair they are distinctly 5-jointed. I have associated *Diaperis* with *Tritoma* in "The Guide," but it is certainly a heteromerous group and cannot be far removed from *Helops* (pl. 298.), but this country is so poor in *Heteromera* that it is impossible to form any idea of their natural affinities from a British collection.

I. Anterior tarsi apparently 4-jointed.

Terminal joint of maxillary palpi elongated.

1. *D. Boleti* Linn. *Curtis's Brit. Ent. pl.* 358.

Panzer having figured both the others, I have given the preference to this handsome species. It is found in May and June in *Boleti* growing upon trees, especially the birch, and was once taken in profusion at Barham, Suffolk, by the Rev. W. Kirby.

II. Tarsi, excepting the hinder pair, 5-jointed.

* Terminal joint of maxillary palpi obtrigonalate.

2. *D. violacea* Fab. *Panz.* 3. 19.—*Dytiscoides Rossi Faun. Etrus.*

$3\frac{1}{2}$ lines long. Ovate, slightly depressed, shining, violaceous, thickly and minutely punctured. Head with a transverse impression at the base of the clypeus. Thorax with a shallow fovea at the base on each side the scutellum. Elytra with 8 punctured striæ on each. Underside pitchy; trophi, antennæ and legs subcastaneous.

Mr. Dale has taken this rare insect under the bark of trees in the New Forest.

** Terminal joint of maxillary palpi oval, truncated obliquely.

3. *D. ænea* Fab. *Panz.* 8. 2.—*metallicus* Fab.—*ahenea* Mars.—*bicolor* Fab. *Panz.* 94. 9. *var.*

2 lines long. Pitchy eneous, ovate, shining, subdepressed, punctured. Elytra with 8 punctured striæ on each. Antennæ and legs transparent, castaneous.

Taken in June and July, in sandy places at Bexley, by Mr. Samouelle; under bark of trees in Kensington Gardens, by Mr. F. Walker; and by Mr. H. Denny, near Leeds, at the stump of a decayed tree; and also at Halifax in Yorkshire.

The plant is *Radiola millegrana* (All-seed).



Scarabaeus sacer (Linn.)

LEIODES CINNAMOMEA.

The Truffle Beetle.

ORDER Coleoptera. FAM. Anisotomidæ Steph. Diaperidæ Leach.

Type of the Genus *Tetratoma cinnamomea* Panz.

LEIODES Lat., Leach., Sam.—Anisotoma Fab., Ill., Panz., Sturm., Gyll.—Tetratoma Herb., Panz.—Silpha Marsh.

Antennæ inserted before the eyes at the base of the mandibles, longer than the head, clavate, pilose, 11-jointed; basal joint robust oval, 2nd shorter and slender, 3rd the longest subclavate, 3 following moniliform, the remainder forming a perfoliate pubescent club, 7th joint large cup-shaped, 8th small transverse-oval, 9th and 10th larger than the 7th, somewhat boat-shaped, 11th club-shaped (6).

Labrum exserted, semicircular, deeply notched and producing a few strong bristles, the margin membranous and pubescent (1). *Mandibles* acute, one with a strong tooth on the inside, slightly membranous and ciliated at the base internally (2).

Maxillæ formed of 2 lobes, the external one horny, pubescent at the apex, the internal one large, oval, membranous and very pubescent. *Palpi* short robust and 4-jointed, basal joint small, 2nd somewhat trigonate, 3rd subglobose, 4th the longest, subconic, obtuse at the apex (3).

Mentum transverse, narrowed before. *Lip* very long and dilated anteriorly, slightly pubescent, the margin notched in the middle, the centre producing a few bristles. *Palpi* long, arising from very distinct articulated scapes; triarticulate, the 1st joint rather the shortest, the others of equal length, the terminal one elongate-ovate (4).

Head nutant, but not concealed. Eyes small lateral. Thorax very convex semiorbicular. Scutellum triangular. Wings more than twice the length of the Elytra which are convex and oval. Legs, anterior short, posterior long. Thighs, posterior sometimes bidentate beneath at the apex in the male. Tibiæ dilated at the apex and spinose. Tarsi, 4 anterior 5-jointed, basal joint slender, 3 following very pilose, obcordate, especially the 4th, terminal joint long clavate. Claws bent acute (5, a fore leg). Tibiæ of hinder pair sometimes long and bent inward, the Tarsi 4-jointed, basal joint nearly as long as the terminal (5†).

CINNAMOMEA Panz. Faun. Germ. 12. 15.

Oval, smooth, shining ferruginous ochre. Club of antennæ, tips of mandibles and eyes black. Head and thorax faintly and minutely punctured, the latter with a transverse impressed line at the base. Elytra very obscurely punctured; 8 punctured striæ on each, the spaces next the suture, between the 2nd and 3rd, 4th and 5th, and 6th and 7th striæ with a few stronger and scattered punctures: posterior thighs dentated beneath, the tibiæ long and curved in the male alone. Female smaller.

In the Author's and other Cabinets.

IN 1807 M. Sturm published in the 2nd volume of his *Deutschlands Fauna* the following series of genera, which he considered allied to each other; namely, Sphæridium, including Cereyon; Anisotoma, comprising Leiodes, followed by Agathidium and Phalacrus: if therefore any credit be due for the discovery of this arrangement, which has lately been adopted in another work, it is due to the entomologist of Nuremburg. No good system, however, ought to be disturbed without solid reasons; and I am convinced that nothing can be proved, without accurate figures of the trophi, antennæ, and other organs.

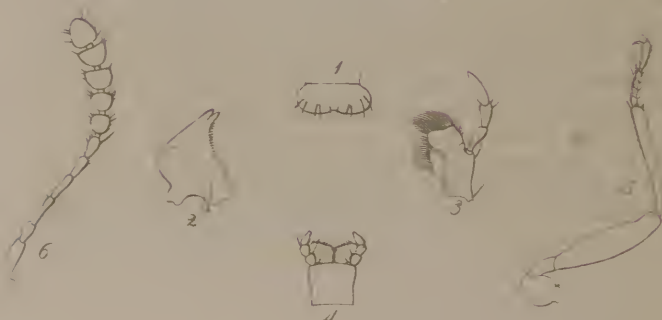
The following species have been detected in this country.

1. *L. cinnamomea* Panz.—*Curtis Brit. Ent. pl.* 251.

Through the kindness of my friend Professor Henslow, I am enabled to give a figure and dissections of this local insect, as well as the following extract from his letter. "The Leiodes were taken at Lord Braybrooke's seat, Audley End, in the month of November. They are to be found there very plentifully, feeding upon the Truffle, between the months of October and December, as I am informed by the man employed to search for this fungus. He tells me that he sometimes finds a maggot in the Truffle, which I presume may be the larva of the Leiodes; but I have not been able to procure a specimen for you." Mr. Kirby has also taken it, I have heard, in Suffolk.

2. *L. armata* Sturm. tab. 24. A.—Taken in Norfolk.
3. *picea* Ill., Panz. 37. 8.—June and July. Sandy places.
4. *ferruginea* Fab., Ill.—*armatum* Payk.
5. *polita* Marsh. 124. 26.—June. Sandy places; Norfolk, &c.
6. *maxillosa* Kirby MSS.
7. *pallens* Sturm. tab. 24. B.—28th August, Heron Court, Hampshire.
8. *brunnea* Sturm. tab. 24. D.
9. *rufa* Dej.?—Mr. Dale.
10. *humeralis* Fab., Panz. 23. 1.—June. Fungi, Darent Wood; Costessey Park, Norfolk, and New Forest, in a species of Puff-ball on stumps of trees; once in abundance.

A Truffle, (*Tuber cibarium* Persoon—*Lycoperdon Tuber* Linn.), accompanies the beetle represented, which is a male highly magnified.



Chalcidius (Chalcidius) 1. 1886

SCAPHIDIUM QUADRIMACULATUM.

ORDER Coleoptera. FAM. Scaphididæ.

*Type of the Genus, Scaphidium quadrimaculatum Oliv.*SCAPHIDIUM *Oliv., Payk., Fab., Lat., Marsh., Gyl., Sam., Curt.*

Antennæ inserted before the eyes, on each side the base of the clypeus, as long as the thorax, clavate, 11-jointed, basal joint long and rather robust, 2nd short ovate, 3rd and 4th slender, scarcely so long as the 1st, 5th and 6th rather stouter, the latter not longer than the 2nd; the remainder forming a submoniliform pilose club, composed of cup-shaped joints, the 7th being smaller than the 9th and 10th, the apical one subglobose (6).

Labrum transverse-ovate, with a small notch in the centre and a few bristles on the surface (1).

Mandibles subtrigonal, produced and rounded externally, the apex bifid, the internal margin slightly pubescent (2).

Maxillæ producing 2 lobes densely pubescent at the apex, the internal one the smallest, the external one large and somewhat ovate. *Palpi* 4-jointed, basal joint minute, the following nearly of equal length, the 3rd being slightly stouter and furnished with 2 bristles, 4th elongate-conic (3).

Mentum quadrate. *Lip* broad and short, slightly emarginate, the angles rounded and pubescent. *Palpi* short, attached to scapes, inserted behind the anterior angles of the mentum, producing 2 or 3 bristles, triarticulate, basal joint the stoutest, cup-shaped, 3rd the slenderest somewhat reverse pear-shaped (4).

Head rather small and subtrigonal, the mouth being slightly produced.

Eyes rather small and lateral. Thorax subtrigonal truncate, the base sinuated. Scutellum minute. Elytra convex and truncated.

Wings ample. Abdomen trigonal, convex beneath, and extending beyond the elytra. Legs slender. Tibiæ with small spurs at the apex. Tarsi 5-jointed, basal joint scarcely longer than the three following in the anterior pair which are very short, terminal joint long.

Claws bent and acute (5).

QUADRIMACULATUM *Oliv. v. 2. No. 20. tab. 1. f. 1.—Panz. 2. 1.—Curtis's Guide, Gen. 174.*

Black, smooth and shining, minutely and rather sparingly punctured: antennæ slightly castaneous at the base: thorax with an arcuated transverse line of strong punctures near the base: elytra with a large irregular orange spot a little below each shoulder, and another, smaller, near the apex of each elytron; a transverse line of strong punctures at the base and a deep channel down each side of the suture: tibiæ and tarsi hairy, the latter inclining to castaneous.

In the Author's and other Cabinets.

I SUSPECT that *Scaphidium* is related to *Cypha*, and I have accordingly placed it before *Scaphisoma* in my Guide; on the other hand our genus is allied to *Mylæchus*, *Catops*, &c. Whether Mr. Kirby's genus *Trichopteryx*, which I introduced between them, ought to be associated with the *Atomariæ* I have not had time to ascertain.

Olivier named our genus *Scaphidium* in consequence of its oval and convex form resembling a boat pointed at both ends: it contains but few species; there are two that inhabit France, but one only has been detected in England.

S. 4-maculatum Oliv.—*Brit. Ent. pl.* 379.

I am not aware that this handsome insect has been figured in any British work; it is beautifully polished, and entirely black, excepting the four orange spots on the elytra: it is by no means common, and was formerly considered very rare.

It seems to be extensively distributed, having been found in Coombe Wood, Surrey, and in Lord Spencer's park at Wimbledon, by my friend Waller Clifton, Esq.: in Norfolk and Suffolk, at Clinger in Gloucestershire, and near Bristol; also not uncommonly on a fungus-like excrescence, which spreads itself under the bark of decaying oaks near Swansea, by L. W. Dillwyn, Esq.

It is generally found in fungi and rotten wood, but sometimes it conceals itself under the bark of trees, as well as under the trunks of those that are felled. Specimens have been found in May and December; and the beginning of last June I discovered several amongst *Boleti*, growing on the decayed stump of a tree near Lyndhurst in the New Forest, and Mr. Dale met with it at the same time: they were very nimble and difficult to capture.

The Plant is *Sedum acre* (Biting Stone-crop, Wall Pepper, or Gold-dust).



CATOPS DISSIMULATOR.

ORDER Coleoptera. FAM. Anisotomidæ or Silphidæ.

Type of the Genus, Helops chrysomeloides Panz.

CATOPS Payk., Curt.—Choleva Lat., Spence.—Ptomaphagus Ill.—Cistela and Tritoma Fab.—Helops Panz.—Mordella Mars.

Antennæ sometimes stouter in the females than in the males, inserted before the eyes (8), as long as the thorax, clavate, pilose and 11-jointed, basal joint oval, 2nd and 3rd obtrigonal, the former shortest, 3 following cup-shaped, the remainder much stouter, excepting the 8th joint, which is saucer-shaped, 7th 9th and 10th somewhat cup-shaped, 11th the largest, ovate, submucronate and compressed at the apex (6 ♂).

Labrum transverse, with a transparent margin, deeply notched, pubescent and furnished with a few short bristles (1).

Mandibles trigonal, very broad at the base, acute, with a notch on the inside below the apex, with a small portion ciliated (2).

Maxillæ rather slender, terminated by an elongated rounded lobe, the internal one much shorter, horny outside and pubescent within. *Palpi* rather short and 4-jointed, basal joint minute, 2nd and 3rd rather short, the former sublancoate, the latter stoutest and hairy outside, 4th the longest, subulate, compressed at the apex (3).

Mentum transverse, trapezate. *Labium* large, subcordate and ciliated, the centre sharply notched and thickened. *Palpi* attached to scapes, inserted beneath the transparent margin of the mentum, remote, short and triarticulate, basal joint a little the largest, oblong, 2nd more quadrate, 3rd short and the slenderest, subovate, the apex soft (4).

Head subovate, anterior portion rather produced, as well as the sides at the base (8): eyes small lateral and ovate. Thorax transverse, convex, the sides rounded, the base straight, with the angles acute: scutellum triangular. Elytra broader than the thorax, ovate-conic, convex and faintly striated. Wings ample. Legs moderately long: thighs, anterior with a tubercle beneath in the male (5 ♂); tibiae, anterior dilated at the apex in the male and surrounded with spines, longest in the female (5 ♀), the others producing long spurs at the apex, especially the hinder pair: tarsi elongated 5-jointed, 4 basal joints heart-shaped in the anterior, the first 3 dilated and very woolly beneath in the male, the basal joint also dilated in the middle pair, in the same sex: claws long and acute.

DISSIMULATOR Spence.—Curt. Guide, Gen. 178. 9.

Subelliptic, piceous, clothed with rather long ochreous depressed silky hairs, slightly scabrous; head punctured; antennæ stout towards the apex, 2 basal joints and tip of the last, as well as the trophi rusty ochre: thorax lurid-piceous, yellow with hairs: elytra depressed down the suture, blacker, the hairs more fuscous, forming obscure striæ; legs ferruginous ochre, thighs more fuscous, the anterior only at the base. Obs. the female is often blacker, with more of the basal joints, and the whole of the apical one ochreous.

In the Author's and other Cabinets.

It will be difficult until more of the neighbouring genera have been investigated, to determine whether the *Cholevæ* belong to the *Anisotomidæ* or the *Silphidæ*; but I agree with Mr. Spence in doubting the existence of any affinity between *Choleva* and *Scaphidium*, and this will appear more evident by a reference to plates 251 and 379, where *Leiodes* and *Scaphidium* are illustrated.

The entomologist will derive valuable information and will be much gratified by a perusal of Mr. Spence's admirable paper in the 11th volume of the *Linnean Transactions*, where the species are described and the divisions instituted that have since been formed into genera. On referring to Dejean's Catalogue, I find that my own cabinet contains as many British species as he possesses from various countries, and I was surprised to see that the Baron is totally ignorant of the monograph above alluded to.

I. 'Thorax with the basal margin excised near the angle.'

1. *C. fornicatus* DeG. v. 4. pl. 8. f. 15.—*nigricans* Spe.—*cicatricata* Mars. var.

April, under dung, on heaths, Norfolk.

2. *sericeus* Payk. Inhabits moss and under stones in shady places in April, Norfolk, and amongst herbage, Swansea.

3. *tristis* Panz. 8. 1.—*clavicornis* Mars.—*Morio* Payk.—*fornicatus* Ill.

Found with the last.

4. *festinans* Spence in *Linn. Trans.* v. 11. p. 145.

10. *affinis* Step.

11. *elongatus* Step.

II. 'Thorax with the basal margin straight near the angle.'

* 'Sides of the thorax parallel or subrecurved just at the base.'

5. *chrysomeloides* Panz. 57. 1.

Middle of May, under dead moles, &c., on banks at Thetford Warren; middle of October, in a rabbit-burrow, sand-hills, Pegwell-bay, J. C.; and on the sand-hills, Swansea, Mr. Jeffreys.

6. *Leachii* Spe. 7. *Kirbii* Spe. 12. *fulvicollis* Step.

13. *Spencii* Step. 14. *caliginosus* Step.

** 'Thorax with the sides rounded from the base to the apex.'

8. *Marshami* Spe.

9. *dissimulator* Spe.—*Curt. Brit. Ent.* pl. 566 ♀.

Taken many years back, with most of the other species, in Norfolk and Suffolk.

The Plant is *Poa* (*Catabrosa* Beauv.) *aquatica* (Reed Meadow-grass).



SILPHA OPACA.

ORDER Coleoptera.

FAM. Silphidæ.

Type of the Genus, Silpha obscura Linn.

SILPHA Linn., Fab., Lat., Mars., Leach., Gyll., Curt.

Antennæ inserted close before the eyes at the base of the clypeus, scarcely so long as the thorax, clavate, pubescent, 11-jointed, basal joint long and slender, 2nd and 3rd elongated, but much shorter, 4 following obovate, 6th and 7th a little stouter and truncated, the remainder forming a perfoliate compressed club of bowl-shaped joints, the last ovate (6).

Labrum transverse, very short, deeply and widely notched, ciliated with a densely pubescent margin (1).

Mandibles long, curved and notched at the apex in one (2), with a 3rd tooth lower down, below which is a large hollow space filled with a dense mass of pubescence.

Maxillæ with a long internal lobe, densely pubescent, the apex terminating in a claw, with a large subovate and pilose lobe above. *Palpi* moderately long and 4-jointed, basal joint small, 2nd and 3rd longish and pear-shaped, 4th scarcely so long, subfusiform-truncate (3).

Mentum transverse, very short, narrowed and pilose before.

Lip large, cordate and thickly ciliated. *Palpi* smaller than the maxillary, attached to large bristly scapes, triarticulate, 1st and 2nd joints pear-shaped, the former bristly at the apex, the latter stoutest, 3rd rather shorter and ovate-conic (4).

Head rather small and ovate, inflected, considerably retracted in repose: eyes rather small and oval. Thorax large, transverse, somewhat semiorbicular, the sides and angles rounded, the base bisinuated: scutellum large and triangular. Elytra not produced at the apex in either sex, not broader than the thorax, ovate, margined: wings ample. Legs, hinder the longest: thighs stout, anterior short: tibiae dilated towards the apex, spurred, minutely pectinated externally: tarsi 5-jointed, 4 anterior dilated in the males and densely pubescent beneath, 5th joint long and clavate: claws strong.

OPACA Linn.—Curt. Guide, Gen. 181, 8.

Black, head thorax and elytra densely clothed with short shining depressed ochreous hairs, giving them a brownish appearance: strongly punctured: thorax truncated before, with depressions on each side, and a few black denuded spots on the disc: elytra with 3 elevated striæ on each, the central one nearly reaching the apex, where it is curved, the others shorter, the 3rd terminated by a slight tubercle: margin reflexed.

In the Author's and other Cabinets.

THE Silphidæ are generally found in putrid carcases: they are sometimes exceedingly abundant in such situations, where they are invaluable animals in causing the speedy decomposition of bodies, being, as it has been truly observed, "nature's scavengers:" they emit a drop of blackish liquor and a very

fetid scent when touched. The genus *Silpha* has been very much divided since the days of the immortal Swede, and the group as it now stands is characterized by its antennæ; *Phosphuga* having the 3 terminal joints alone incrassated, and in *Oiceoptoma* the club is abruptly formed. The following are British species, which I have thus divided.

1. Hinder spurs of tibiæ simple.

* *Anterior margin of thorax concave.*

1. *lævigata* *Fab.*—*Oliv. v. 2. No. 11. pl. 1. f. 1.*

May, June, and July, sandy places, Norfolk; under stones, Isle of Portland.

** *Anterior margin of thorax concave or truncated.*

2. *quadripunctata* *Linn.*—*Don, 2. 56. 2.*—*Sam. pl. 2. f. 7.*—*Panz. 40. 18.*

May, on oaks, Norfolk, Enborne, Coombe, Darent and other woods; also in putrid animals and under moss in the winter.

3. *obscura* *Linn.*—*Don. 2. 63. 4.*—*atrata* *Herb.*

April, pathways in corn-fields, Sandwich, Norfolk, Suffolk, and elsewhere, common until August.

4. *tristis* *Ill.*—*granulata* *Thunb.*—*recta* *Marsh.*

June, Settle, Yorkshire; Carlisle, Mr. Heysham; Parley Heath, Mr. Dale; October, under a stone near the beach, Torquay, Devon; Swansea, Mr. Dillwyn.

5. *Griesbachiana*, *Step. Ill. 3. 26.*

“Larger than *S. tristis*, from which it chiefly differs by the abbreviation of the exterior elevated lines on the elytra, and the different position of the central one at the apex: it may be the *S. granulata*, *Oliv.*”

The specimen in the British Museum was taken by Mr. A. Griesbach near Winchester.

6. *nigrita* *Creut. pl. 2. f. 20. b.*—*bicolor* *Haw. Ent. Trans., p. 82. var.*

June, common in meadows and roads at Ambleside and in various parts of Yorkshire, also at Birmingham.

7. *reticulata* *Fab.*—*rugosa* *Panz. 5. 9.*—*obscura* *Herb.*—*granulata* *Mars.*

June, corn-fields, Epping Forest and the neighbourhood of London; Parley Heath, Mr. Dale; Crwmlyn burrows, Mr. Dillwyn.

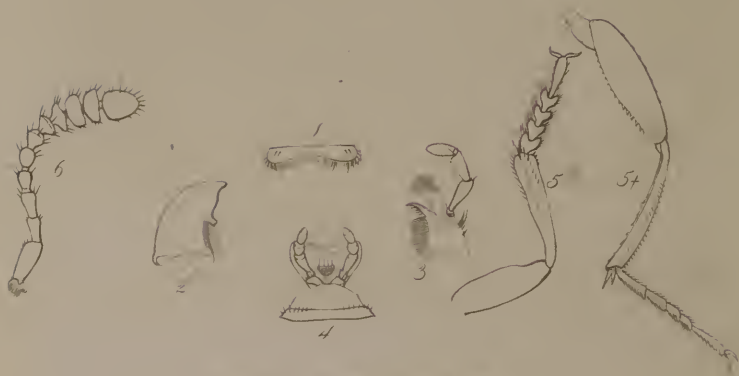
2. One of the hinder spurs bifid, the branch curved.

8. *opaca* *Linn.*—*Curt. B. E. pl. 742 ♂.*—*tomentosa* *DeGeer.*

Obs. some specimens of the female are black, probably from the pubescence being worn off.

February, roots of trees; the beautiful specimen figured I took out of a dead bird in April, which I found in Suffolk; another on Kersall Moor; May, under stones in sandy places, Norfolk, and in flowers of the mountain-ash, Rev. J. Burrell.

The plant is *Arrhenatherum avenaceum*, *Avena elatior*, *Linn.*, Oat-like Soft Grass.



NECRODES LITTORALIS.

ORDER Coleoptera. FAM. Silphidæ Leach.

*Type of the Genus, Silpha littoralis Linn.*NECRODES Wilk. MSS., Leach, Sam., Lat., Steph.—*Silpha* Linn., Fab., Marsh.

Antennæ inserted before the eyes, close to the base of the mandibles, porrected, shorter than the thorax, clavate and pilose, submoniliform, and perfoliate; 11-jointed, basal joint long and robust, 2nd and 3rd elongate-obovate, 4th and 5th subglobose, 6th 7th and 8th cup-shaped, the remainder larger, fleshy and compressed, somewhat bowl-shaped, excepting the last which is subovate (6).

Labrum broad and very short, the anterior margin coriaceous and ciliated, concave in the middle (1).

Mandibles small, very convex externally, slightly pointed, with a tooth near the middle, below which they are densely pubescent (2).

Maxillæ with a curved and acute claw on the inside, ciliated below with dense pubescence, terminal lobe oblong rounded and very pubescent. *Palpi* short, nearly naked, 4-jointed, basal joint subglobose, 2nd and 3rd of equal length, clavate-truncate, 4th joint shorter, elongate-oval (3).

Mentum semicircular, coriaceous, dilated and corneous at the base.

Labium large, cordate, clothed with very short pubescence. *Palpi* attached at the base to 2 corneous and bristly scapes, longer than the lip and triarticulate, basal joint the longest, 2nd and 3rd ovate; all the joints are coriaceous and pale at the apex (4).

Males larger than the females. Head small, subtrigonal, very much contracted at the base, but sunk to the Eyes which are large prominent and oval. Thorax large orbicular. Scutellum large, triangular. Elytra depressed, truncated and scarcely so long as the body. Wings ample. Legs, anterior short. Thighs, posterior incrassated in the males. Tibiæ spurred. Tarsi 5-jointed; anterior and middle pair with the 4 first joints dilated and cordate in the males, the basal joint a little elongated (5, a fore leg).

Obs. The dissections are all taken from a male of *N. Curtisii*.

LITTORALIS Linn. Faun. Suec. p. 148. n. 450. Marsh. p. 116. n. 5. Curtis's Guide, Gen. 183. 1. Panz. 40. f. 15. ♀.—rufo-clavata DeG.—femorata Müll. ♂.

In the Author's and other Cabinets.

THIS well characterized genus was separated from *Silpha* many

years since by Mr. S. Wilkin; and it was afterwards defined and established by Dr. Leach in the Edinburgh Encyclopedia.

The natural situation of *Necrodes* is between Dr. Leach's genus *Oiceoptoma* and *Necrophorus* (pl. 71), being distinguished from the former by its orbicular thorax and oblong and truncated elytra, and from the latter by its antennæ, which are not capitate: but the character that at once distinguishes the males from the whole family is, the structure of the intermediate tarsi, which are dilated as well as the anterior pair.

It is now probably twenty years since I pointed out the specific differences in the following insects; and Dr. Leach, who took every opportunity of encouraging tyros in the science, did me the honour of naming the second after me; and I think it will be admitted on a comparison of the following descriptions, that there is something more than size to distinguish the species, although a recent writer could find no other differences between them.

1. *N. littoralis*, Linn.—*Curtis Brit. Ent. pl.* 334. ♂.

Male black, slightly glossy, thickly and minutely punctured: antennæ robust, with the three terminal joints orange: eyes ochreous: thorax with a shallow channel down the centre, and one on each side formed like an *S*, and meeting another near the base V-shaped: elytra inclining a little to castaneous, strongly and exceedingly thickly punctured, with three elevated longitudinal lines on each, not reaching the apex, the second angulated beyond the middle where there is a fovea between it and the third; which is curved towards the extremity: legs robust; posterior thighs greatly incrassated and strongly denticulated beneath, the hinder tibiæ very much curved: intermediate tarsi more dilated than the anterior.

Female, with the thighs tibiæ and tarsi simple.

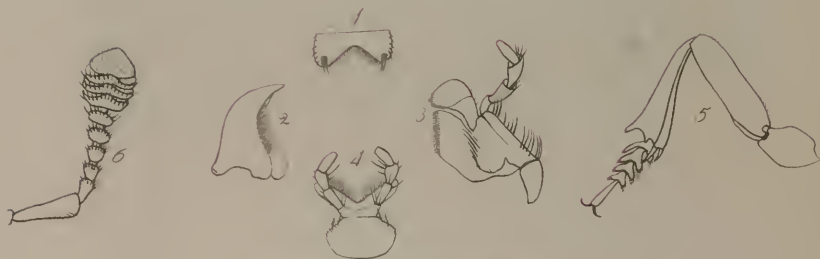
Inhabits putrid carcasses, in meadows and on the shores of rivers.

2. *N. Curtisii*, Leach *Edinb. Ency. v.* 9. p. 89.—*simplicipes Dej. Cat.?*

Male, half the size of the former, the female of which it much resembles. Antennæ slender: thorax very glossy in the centre: elytra sometimes more castaneous, the three elevated lines continued to the apical margin, the second less angulated, and the third less curved towards the apex: legs rather slender; posterior thighs the thickest, serrated beneath; tibiæ nearly straight (5†, the hind leg): intermediate tarsi not so much dilated as the anterior (5, the fore leg). *Female* undiscovered.

I have taken *N. Curtisii* near Norwich, Mr. Davis and Mr. Newman in Battersea Fields, and Dr. Howitt near Nottingham.

Coprinus? accompanies the insect.



Curculio laticornis Muls.

NECROPHORUS GERMANICUS.

ORDER Coleoptera. FAM. Silphidæ *Leach*. Necrophagi *Lat*.

Type of the Genus Silpha Humator Linn.

NECROPHORUS *Fab., Oliv., Lat. Silpha Linn., Marsh. Dermestes Geoff. Necrophagus Samouelle.*

Antennæ inserted before the eyes, geniculated, pilose, 10-jointed, 1st joint long, curved, clavate, 5 following short, gradually thickening from the 1st, the 4 last forming a perfoliated club, the joints being horny externally, membranaceous internally, the terminal joint somewhat acuminate (f. 6).

Labrum transverse, deeply emarginate, thickly ciliated, with a tuft of long hairs arising near the apex of each lobe (1).

Mandibles strong, exerted, curved, acute, entire; internal edge beneath clothed with thick hair (2).

Maxillæ corneous, lobes coriaceous, internal one thickly ciliated, external with a transverse suture, the terminal portion being dilated and very hairy: *Palpi* short 4-jointed, 1st joint small, 2nd and 3rd clavate-truncate, 4th cylindric-ovate (3).

Mentum transverse somewhat ovate: *Palpi* composed of 3 joints of nearly equal length, 2nd robust, clavate-truncate, 3rd cylindric somewhat ovate-truncate: *Labium* long bilobed, lobes divaricating, ciliated with long hairs (4).

Head large. Eyes reniform. Neck distinct. Thorax somewhat orbicular, rounded behind. Scutellum large triangular. Elytra shorter than the abdomen, truncated at the apex, external margin inflected, not channelled or keeled. Wings 2, very long. Abdomen long quadrate. Tibiæ spurred. Tarsi 5-jointed, anterior dilated in the males (5 a fore leg of male).

Obs. the dissections are made from *N. vestigator* *Herschel*.

GERMANICUS *Linn. Syst. Nat. 2. 569. 1. Fab. Ent. Syst. t. 1. pars 1. p. 246. n. 1. Marsh. Ent. Brit. p. 113. n. 1.*

Intense black, shining. Club of antennæ velvety black. Mouth, centre of clypeus, cilia of anterior margin of thorax and of the anterior tarsi of the males aureous. Eyes ochraceous, speckled with black. External margin of elytra furruginous. Head rather minutely punctured, except in the centre. Thorax considerably dilated anteriorly, very delicately punctured, the lateral and posterior margins deeply punctured, an obsolete channel down the centre. Scutellum minutely punctured. Elytra rather coarsely punctured, with 3 plain longitudinal lines on each. Shoulders and sides pubescent. Abdomen punctured, segments and sides ciliated. Pectus pubescent with piceous hairs.

In the Cabinet of Mr. Vigors.

THE *Silphidæ* principally live upon dead animals, which render them of great utility in removing what might otherwise become offensive and noxious to mankind; and none are more powerful or active agents in this important service than the *Necrophori*, both in the larva and perfect states. The accounts of French writers respecting the *Silpha Vespillo* (the Grave-digger) are extremely curious and interesting: four or five of them, on finding a mole, frog, mouse, or other small animal, if it be not in a convenient place remove it to one that is more so, when they insinuate themselves under it, and clearing away the earth beneath, it is soon concealed from the eye, and in the course of 48 hours is absolutely buried to the depth of a foot. This operation is performed that the eggs, which are afterwards deposited there by the females, may have food when they hatch, to sustain them until they become pupæ; before which period it is completely devoured by them, neither the bones nor the skin sometimes being left.

Some species of *Necrophori* are also found in Fungi: they are all to be met with during the spring and summer. They have exceedingly long wings, and carry their elytra in flight erect; they are very subject to be infested with acari, with which sometimes they are completely covered.

N. Germanicus is very rare in this country: the fine male figured from the cabinet of N. A. Vigors, Esq., was taken many years back in Norfolk by the Rev. J. Burrell, to whose zeal we are indebted for a knowledge of many of our rarest insects. It may be at once distinguished from *N. Humator*, not only by its size and form, but by the club of its antennæ being black, by the orange-coloured clypeus, and the furruginous margin of the elytra.

The genus may be thus divided:—

A. Posterior trochanters without spines: Tibiæ straight.

* Thorax somewhat quadrate orbicular.

1. *Mortuorum* Fab. *Donovan's Brit. Ins.* v. 15. t. 537. f. 2.

2. *Vestigator* Herschel *Magazin für Insectenkunde*, v. 6. p. 274.

3. *Humator* Oliv. *Don. Brit. Ins.* v. 15. t. 537. f. 1.

** Thorax dilated anteriorly.

4. *Germanicus* Linn.

5. *Anglicus* Leach's MSS.—*Anglicanus* Samouelle—*Britannicus* Wilkin's MSS.

B. Posterior trochanters spined: Posterior Tibiæ bent.

6. *Vespillo* Linn. *Spinus* Kirby's MSS.—*Don. Brit. Ins.* v. 1. t. 23.

Silpha bimaculata of the Entomol. Trans. (tab. 2. f. 1.) is considered, I believe, to be only a variety of *N. Humator*.

Agaricus coccineus Bulliard, is figured with the insect.



Drawn by J. Curtis. Feb. 1. 1830

EMUS HIRTUS.

ORDER Coleoptera.

FAM. Staphylinidæ.

*Type of the Genus, Staphylinus hirtus Linn.*EMUS *Lea., Dej., Curt.*—*Staphylinus Linn., &c.*

Antennæ inserted near the base of the labrum, remote from the eyes, a little longer than the head, geniculated and slightly clavate, pubescent and 11-jointed, basal joint long, 2nd short, 3rd longer, both clavate, the remainder remotely articulate, 4th and 5th globose, the following transverse, somewhat bowl-shaped, being most produced on the inside, the terminal joint suborbicular, hollowed at the apex and a little acuminate (6).

Labrum broad and short, deeply cleft in the centre, densely ciliated, leathery, with a corneous space on each side at the base, producing long hairs (1).

Mandibles crossing, very long, stout and curved, deeply notched on the inside below the middle, with a pubescent lobe on the inside, the internal margin concave and more or less notched above, the apex attenuated and acute (2).

Maxillæ with a long internal lobe, densely pubescent and ciliated, a smaller articulated lobe at the apex, ovate curved and densely pubescent outside, with a few bristles. *Palpi* 4-jointed, basal joint small, curved, 2nd and 3rd nearly of equal length, clavate and producing long bristles, the former a little the stoutest, 4th shorter, slender and cylindric (3).

Mentum transverse-ovate, submembranous, with a bundle of bristles on each side. *Labium* elongated, the centre notched, sides spreading and produced, forming two very pubescent lobes. *Palpi* attached beyond the middle to 2 small scapes, composed of 3 nearly equal joints, basal joint clavate with a single bristle on the inside, 2nd stouter and ovate, with very strong bristles on the inside, some curved, 3rd a little the longest and slenderest, fusiform-truncate (4).

Head as broad as the thorax: eyes not large or prominent, placed on each side the anterior angles; neck distinct. Thorax semiovalate, being truncated before: scutellum somewhat trigonate. Elytra broader than the thorax, depressed, nearly quadrate, the angles rounded: wings ample. Abdomen a little narrower and longer than the elytra, margined, ovate at the apex. Legs stout: anterior coxæ large; posterior trochanters producing a spine, sometimes very large, twisted and truncated obliquely (†): tibiæ, anterior with short spines outside, the apex regularly spined in all, with unequal spurs in the 4 posterior: tarsi short, anterior dilated (5), cushioned beneath, 5-jointed, 3 first joints sublunate, 4th smaller and subcordate; 5th clavate; in the others the basal joint is as long as the terminal one: Claws strong (†, hind leg).

HIRTUS *Linn.*—*Curt. Guide, Gen. 185. 1.*—*bombylius De G.*

In the Author's and other Cabinets.

HAVING been long persuaded that the Silphidæ and Staphylinidæ are nearly related, I made Necrophorus and Emus the connecting points, and whether we consider their habits of life, their general appearance, or their structure, the affinity is maintained: *N. Vespillo* and *E. hirtus* both live in dead animals, they are considerably clothed with hair, their elytra are abbreviated, and both have *the posterior trochanters armed with a spine*. By referring to the dissections in pl. 71, it will be seen that there is not only a general resemblance in the trophi &c., but in some respects they are remarkably similar, for example the maxillæ and their palpi with a large internal lobe, and a dilated terminal one; the antennæ also are geniculated and bear so great a likeness to those of Necrodes (pl. 334), that I think it may be safely said, Emus is as nearly allied to Necrophorus on the one hand as Necrodes is on the other.

Dejean unites under Emus our genera Creophilus, Staphylinus, Ocypus and Goerius, but I believe sufficient characters may be found to separate at least some of them.

E. hirtus Linn.—Curt. Brit. Ent. pl. 534.

Black, thickly and minutely punctured and densely clothed with hairs of a shining orange colour on the head, thorax (excepting the hinder margin), and 3 last segments of the abdomen: elytra clothed with short griseous hairs, excepting the base, sometimes with 2 or 3 black spots forming an interrupted line: underside violaceous.

This is considered a rare insect in Britain, although few good Cabinets are without it: for the specimen figured I am indebted to Capt. Blomer, who found it on Cow-dung in the New Forest the 8th of April; Mr. L. Rudd observed it in the same neighbourhood in July, and Mr. Ingpen states that it has been found in dead animals in the same locality: Mr. Dale met with it on Parley Heath the 16th of May; the late Mr. Scales took it at Beachamwell in Norfolk, and it has occurred in the neighbourhood of Guildford. Donovan says "it inhabits sandy places and is also found among moss concealed or lying under stones. Mr. Comyns has met with it in Devonshire. We once saw it on the wing in a thicket in Coombe-wood, Surrey."

It flies well, is very active in the sun, and looks like a Humble-bee on the wing. It varies very much in size, some continental specimens being much larger and broader than the one figured, and others narrower and rather shorter, with the head very much less developed.

The Plant is *Alopecurus bulbosus* (Bulbous Fox-tail-grass), communicated by James Paget, Esq. of Yarmouth.



STAPHYLINUS PUBESCENS.

ORDER Coleoptera.

FAM. Staphylinidæ.

Type of the Genus, Staphylinus murinus Linn.

STAPHYLINUS Linn., Fab., Gyll., Erich., Curt.—Trichoderma Step.

Antennæ inserted before the eyes, near the base of the labrum, as long as the thorax, slightly clavate and geniculate, pubescent, 11-jointed; basal joint long, 2nd and 3rd short, pyriform, the latter sometimes a little longer, the remainder moniliform, slightly increasing in diameter, terminal joint with a tubercle or hook at the lower extremity (6).

Labrum exserted, transverse, deeply notched, forming 2 rounded lobes ciliated with long hairs and a few bristles (1).

Mandibles porrected, long and slender, curved, the apex forming a long claw with 2 or 3 teeth on the inside, deeply emarginate below the middle, with a densely pilose lobe towards the base (2).

Maxillæ terminated by a densely hairy ovate lobe, apparently articulated, and a larger and long one on the inside densely ciliated. *Palpi* longish, filiform, slightly bristly, 4-jointed, basal joint short, pyriform-truncate, 2nd the longest, 3rd scarcely so long, both clavate, 4th the same length, subfusiform (3).

Mentum very short, transverse, sides rounded, anterior margin concave. *Labium* elongated, narrowed at the middle, apex cordiform, the sides forming 2 lobes. *Palpi* attached to the disc towards the apex, triarticulate, first 2 joints equal, oblong, the latter bristly on the inside towards the extremity, 3rd a little longer, slenderer and fusiform (4).

Head a little broader than the thorax, suborbicular: eyes not large, lateral and oval. Thorax obovate-truncate, anterior angles acute: scutell cordate, depressed. Elytra broader than the thorax, quadrate, emarginate behind: wings ample. Abdomen as broad as the elytra, depressed, margined, the apex conical, with 2 lateral bristly styles in the female, penultimate segment notched beneath in the male. Legs, anterior the shortest, hinder the longest: coxæ stout, intermediate remote: thighs short: tibiæ, anterior very short, slightly spiny, the others spurred: tarsi 5-jointed, anterior with the first 4 joints dilated, cordiform and cushioned beneath (5), the others slender, filiform, basal joint the longest, 4th the shortest: claws strong and curved.

PUBESCENS DeGeer.—Curt. Guide, Gen. 188. 3.

In the Author's and other Cabinets.

THE Staphylini, called Rove-beetles in England, form a genus of Linné's, containing an immense quantity of species, which now comprise many subfamilies and numerous genera. The present group is distinguished from Ocypus by the shape of the mandibles, and the intermediate coxæ are more remote. Erichson has united Emus and Creophilus with our Staphylini, although the trophi and antennæ vary considerably. The Staphylini are principally found under the dried dung of horses

and cows, where most likely they live upon the insects that breed in multitudes in such substances. Our British species are

1. *nebulosus* *Pk.*—*murinus* *Pz.* 66. 16.—*hybridus* *Mars.*—*Don.* 16. *pl.* 563. August and September, Norfolk, Suffolk, mountains above Pontneddfechan, and in putrid Boleti, Mr. Dillwyn.

2. *murinus* *Linn.*?—*Oliv.* 3. *No.* 42. *t.* 6. *f.* 51? Although Linné does not mention the colour of the legs, I think it very probable that he intended to describe the former species. May and June, in putrid birds and under stones, Norfolk; October, sand hills, Ramsgate, near Bristol and Swansea.

3. *pubescens* *DeGeer.*—*Curt. Brit. Ent. pl.* 758.—*fulviceps Kirby var.*

Blackish, pitted, tessellated with brown formed by ochreous pubescence; very thickly punctured; a few shining large punctures on the head, and 2 or 3 on each side of the thorax; mouth and 5 basal joints of antennæ ochreous, mandibles, palpi, a stripe on the 2 basal joints and base of the 3rd black; scutel velvety black on the sides; inflected margin of elytra ferruginous at the base; abdomen with a dorsal line of shining yellowish triangular spots, with an oblique black one on each side; thighs with an ochreous ring at the apex; postpectus and underside of abdomen densely clothed with silvery pubescence, dotted with black.

June, near Edinburgh, Ambleside, Swansea, and London.

4. *erythropterus* *Linn.*—*Don.* 9. *pl.* 308.—*cæsareus* *Erich.*

The Linnæan species has the abdomen spotted with shining golden hairs, which distinguishes it from the following, which, as far as I have seen, has an unspotted body and a yellow scutel.

June, common in dung, under stones and upon plants in meadows.

5. *castanopterus* *Grav.*—*erythropterus* *Oliv.* 3. 42. *t.* 2. *f.* 14.—*Panz.* 27. 4.

Fabricius considered this as a variety only of Linnæus's *S. erythropterus*. Taken near Edinburgh, London, Swansea, and in Norfolk and Devon.

6. *stercorarius* *Oliv.* 3. *t.* 3. *f.* 23.—*brunnicornis* *Kirby.* Norfolk, Suffolk, and near London in the spring; August, under stones near the sea, Swansea, Isle of Wight and Arran; North Denes, Yarmouth, Mr. Paget.

7. *æriceps* *Kirby.* Near Barham, Suffolk, and London.

8. *chalcocephalus* *Fab.*—*ochropterus* *Grav.*

Said to be in the British Museum.

9. *æneocephalus* *DeGeer.*—*sericeus* *Mars.*—*leucophthalmus* *Mars. var.*—*cupreus* *Oliv.* 3. *t.* 2. *f.* 16. *var.* Included by Erichson in the genus *Ocys*. May, heaths and grassy downs, Norfolk; Gorleston Cliffs, abundant, Mr. Paget; Hampstead Heath; October, Southchurch, Essex; Swansea and Scotland, under stones.

Ligusticum scoticum, Scottish Lovage, from a root brought from Scotland by Mr. Woods, was communicated by Mr. Janson.



TASGIUS RUFIPES.

ORDER Coleoptera. FAM. Staphylinidæ.

*Type of the Genus, Astrapæus rufipes, Lat.*TASGIUS *Lea.*, *Ste.*—Astrapæus *Lat.*—Goërius *Curt.*—Ocypus & Goerius *Ste.*

Antennæ inserted before the eyes on the margin of the clypeus, remote, as long as the head and thorax, filiform, pilose, slightly geniculated, 11-jointed, basal joint long, a little narrowed at the base, 2nd half the length, 3rd a little longer, elongate obconic, the remainder moniliform subquadrate, 9th and 10th sub-turbinate, 11th subovate, one side of the apex acuminate (6).

Labrum semiorbicular, deeply notched in front, and ciliated with fine long hairs, with a row of strong bristles above (1).

Mandibles alike, long and arched, acute, with a tooth at the middle on the inside, below which is a membranous pubescent lobe (1).

Maxillæ with a large internal lobe, terminated by a falcate one, both densely pubescent and ciliated. *Palpi* rather short, 4-jointed, slightly bristly, basal joint small, 2nd the longest, 3rd and 4th of equal length, 2nd and 3rd pear-shaped, 4th ovate-truncate terminated by a gland or vesicle (3).

Mentum subtrigonal, truncated before. *Lip* subcordate, each lobe notched and ciliated. *Palpi* attached to 2 remote scapes near the centre, short, triarticulate, 1st and 2nd joints short, the latter slightly notched on the inside and armed with a curved spine and 2 or 3 bristles, 3rd equal in length to the others, elongate-ovate, terminated by a gland (4).

Head suborbicular, nearly or quite as broad as the thorax; neck short: eyes not prominent. Thorax subovate, convex and truncated before: scutellum triangular. Elytra a little broader than the thorax, quadrate, the angles rounded. Wings ample. Abdomen as long as the rest of the insect, 6-jointed, the sides margined and raised, terminal joint semiorbicular, furnished with 2 small pubescent lobes. Legs strong: coxæ, anterior very large: thighs, anterior short and stout: tibiæ, anterior very short and dilated anteriorly, the others spurred and bristly, especially the middle pair: tarsi 5-jointed, anterior short, dilated, and cushioned beneath, the joints subcordate, the terminal one clavate: claws slender and curved (5, a fore leg).

RUFIPES *Lat. Gen. Crus. v. 1. p. 285.*—*Curt. Guide, Gen. 190^a. 4.*

In the Cabinets of the British Museum and the Author.

IN this genus we find the somewhat uncinated apical joint of the antennæ, which is characteristic of the typical Staphyli-

nidæ; the anterior tarsi are dilated, but whether equally in both sexes I am unable to determine, from the scarcity of the species; the mandibles are furnished with a ciliated membrane on the inside, called the *prosthema* by Mr. Kirby, when it forms a distinct lobe; but the most curious part of the structure is the curved spine on the inside of the 2nd joint of the labial palpi.

T. rufipes, in habit as well as in the form of the trophi, differs materially from *Astrapæus Ulmi*, which first induced Dr. Leach to separate it from that genus in which it was included by M. Latreille. Having had occasion to examine them formerly, I found the *T. rufipes* agree so much better with the group called Goerius, that I placed it in that genus, immediately following an unnamed specimen which appeared to be closely allied to it, and which Mr. Waterhouse informs me is the *G. confinis*, Kirby; and as he had formed the same opinion as myself, I have again investigated the subject; and thinking it ought to be included in the genus Tasgius, I shall describe both species.

1. *T. rufipes* Lat.—*Curt. Brit. Ent. pl.* 438.

Piceous black, shining, with long scattered hairs: head and thorax sometimes with a slight bluish cast, and thickly punctured; mandibles castaneous, palpi and antennæ ferruginous, the latter dusky at the middle: head with 4 small transverse punctures behind: thorax with a slightly raised line down the middle; scutellum, elytra, and abdomen, very thickly and minutely punctured, and clothed with short depressed pubescence, the two former dull cyaneous: coxæ castaneous; legs bright ferruginous.

My specimen of this rare insect, which has never before been figured, I took at Dover in 1831; those in the British Museum are from Spitchwick, Devon.

2. *T. confinis* Kirby?

Length $6\frac{1}{2}$ to 7 lines. Black, palpi and internal margin of mandibles castaneous, articulations of antennæ of the same colour; head and thorax shining, slightly pilose, the former thickly punctured except on the crown, with a minute puncture behind each eye, the latter sparingly punctured: scutellum, elytra, and abdomen, minutely and thickly punctured, dull with depressed hairs: tarsi castaneous, rather dull at the base.

This specimen I purchased in the collection of the late Mr. E. Blunt; it was taken probably in Essex, where it has been found under the bark of trees.

The Plant is *Vicia sepium* (Bush Vetch).

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QUEDIUS LATERALIS.

ORDER Coleoptera.

FAM. Staphylinidæ.

Type of the Genus, Staphylinus tristis Grav.

QUEDIUS *Lea., Curt.*—*Microsaurus Dej.*—*Staphylinus Linn., Gyll., Grav.*

Antennæ inserted before the eyes close to the margin of the clypeus, remote, a little longer than the head, slightly thickened towards the apex, pilose, scarcely geniculated, 11-jointed, basal joint the longest and stoutest, 2nd sometimes shorter than the 3rd which is elongate-obovate, 4th and 5th obovate, the remainder remotely articulated and cup-shaped, apical joint elongated, stout oval and acuminate on the inside (6).

Labrum very broad and short, the anterior margin rounded, not notched but ciliated with long bristles above, with fine hairs beneath (1).

Mandibles long, curved, crossing, rather slender, terminating in a sharp point, with one or two acute teeth on the inside, below them is a membranous margin densely ciliated with long fine hairs (2).

Maxillæ with a large ovate lobe on the inside densely pubescent, and a smaller sublunate one at the extremity, very pubescent at the apex. *Palpi* not long, subfiliform and 4-jointed, basal joint slender short and curved, 2nd elongated and clavate, 3rd as stout but rather shorter, 4th scarcely so long, slender and attenuated, with a gland at the apex (3).

Mentum very short and broad, the sides sloped. *Lip* elongated, cordate, dilated at the base, the anterior margin trilobed. *Palpi* inserted near the extremity of the lip, nearly as large as the maxillary, slender and triarticulate, first 2 joints obovate, 2nd with a few curved hairs on the inside, 3rd twice as long, fusiform, with a gland at the apex (4).

Head narrower than the thorax, ovate, neck short: eyes oval, not prominent. Thorax ovate, truncated before, convex and broadest at the base: scutell triangular. Elytra nearly quadrate, not broader than the thorax. Wings moderate. Abdomen long, linear, subelliptic, with 3 lobes at the apex. Legs, fore pair very short: coxæ, anterior larger than the thighs which are ovate: tibiæ, anterior short and stout, the others a little bristly and spurred at the apex: tarsi 5-jointed, anterior short, the 4 basal joints cordate, dilated and forming an ovate mass densely pilose beneath, 5th joint small: claws short (5, a fore leg).

Larvæ with antennæ, 6 pectoral and 2 anal feet. *Trans. Ent. Soc. 1, pl. 3. f. 2.*

LATERALIS *Grav.*—*Curt. Guide, Gen. 192. 5^a.*

In the Author's and other Cabinets.

ALTHOUGH this genus is very like *Philonthus*, it is readily distinguished by its very broad anterior tarsi; the tibiæ also in this pair are not bristly, and the spurs are much shorter. It is remarkable that the *labrum*, at least in the typical species, is

not notched, which unfortunately interferes with the leading divisions of this tribe adopted by Latreille, Mannerheim, &c., formed upon the cleft and undivided labrum.

There are nearly 40 species of *Quedius* recorded as British; they live under stones, the bark of decayed trees, in moss and dung.

1. *The whole insect broad.*

1. *lateralis* Grav.—*Curt. Brit. Ent. pl.* 638.

Black, shining; head large and orbicular with 2 punctures at the base, 2 on the margin of the eyes, which are rather large, and several at the hinder angles: thorax broader than the head, suborbicular, with 2 curved lines of punctures on the disc, each containing 4 or 5, another outside of 3, and a single one nearer the lateral margin which bears a line of punctures: elytra and abdomen thickly punctured and clothed with longish hairs, the inflected margin of the former dark ochreous, the latter short, broad, and green, the margins of the segments violet, penultimate joint edged with white, the apex ferruginous, palpi and basal joint of antennæ ferruginous, 2nd joint nearly as long as the 3rd; legs dark ferruginous, thighs piceous at the base.

I took a specimen of this very distinct species at Durnford near Salisbury in September 1831, and another in Scotland in July.

2. *Skrimshiranus* Ste. The only specimen I have seen was taken under a flowerpot in Whitehall Gardens, by the Honourable C. A. Harris.

2. *The whole insect elongated and comparatively narrow.*

* *Eyes rather large.*

3. *tristis* Grav.—*dilatatus* Mars.—*pivicornis* Kirb.

4. *gracilis* Ste. 5. *pyrrhopus* Kirb. 6. *analisis* Ste.

7. *molochinus* Grav.—*picipennis* Pk.—*denudatus* Kirb.

** *Eyes small.*

8. *hæmorrhous* Kirb.—*fulgidus* Mars. 10. *rufitarsis* Mars.

11. *variabilis* Gyl.—*mesomelinus* Mars.? 12. *dorsalis* Ste.

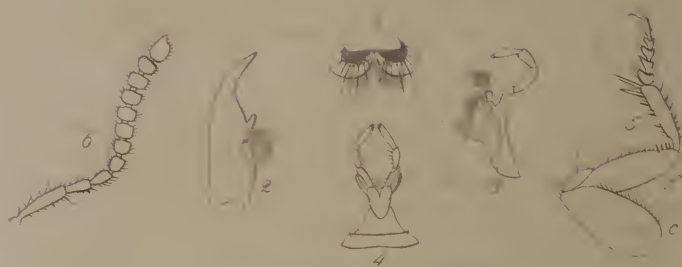
14. *Lathburii* Kirb.—*flavopterus* Oliv.? 16. *fulvipes* Fab.

—*lævigatus* Gyl. 17. *impressus* Grav.—*marginellus* Mars.

18. *atripennis* Ste. 19. *sericopterus* Ste.—*ruficornis* Grav.?

27. *rufipes* Ste.—*fulvipes* Ste. 28. *nigricornis* Ste. 29. *nitescens* Ste.—*pivicornis* Ste. 30. *caliginosus* Ste. 32. *inquinatus* Kirb.; my ♀ has slender anterior tarsi. 33. *castanopterus* Ste. 35. *flavescens* Fab.—*suturalis* Mars.—*discoideus* Gyl. 37. *nitidus* Fab.—*cœnosus* Grav. 38. *erythropterus* Ste. The other species will be found in the Guide.

For specimens of *Spartina* (*Dactylis*) *glabra* Mühl. I am indebted to Dr. Bromfield, who discovered this species on the banks of the Itchen near Southampton.



PHILONTHUS MARGINATUS.

ORDER Coleoptera.

FAM. Staphylinidæ.

*Type of the Genus, Staphylinus splendens Fab.*PHILONTHUS *Lea., Curt.*—*Staphylinus Linn., Fab., Grav.*

Antennæ inserted in front of the head near the base of the labrum, nearly filiform, geniculated, rather stout and hairy, more pubescent towards the apex; 11-jointed, basal joint long and clavate, 2nd and 3rd a little elongated, of equal length, the remainder moniliform, 4th joint the smallest, subovate, 5th more orbicular, the following a little transverse cup-shaped or obovate, apical joint ovate-truncate, outer angle acuminate (6). *Labrum* transverse, rounded and bilobed, being deeply cleft in the middle, the lobes horny at the base, fringed with long bristles, the margin broad and thin, densely pubescent towards the centre (1).

Mandibles very similar, elongated, a little curved, the apex forming a long claw, dilated a little internally at the middle, and forming a small tooth above in one (2), and a tubercle only in the other, emarginate beneath, with a membranous margin and a series of hairy filaments, forming an orbicular compressed brush of hairs (2).

Maxillæ rather small, terminated by a small oval lobe densely pubescent, and a long one on the inside, thickly ciliated. *Palpi* nearly of equal length, but these are a little the stoutest and 4-jointed, basal joint not very short, subclavate, 2nd the longest and stoutest, 3rd longer than the 1st, attenuated at the base, 4th a little longer and slender, subfusiform (3).

Mentum subtrigonal, the base short broad and horny, the anterior portion narrowed and membranous. *Labium* obovate, with a long narrow curved lobe on each side before. *Palpi* arising from 2 scapes towards the apex of the lip, elongated, slender and triarticulate, first 2 joints nearly of equal length, the former clavate, the latter more ovate, 3rd the longest, subfusiform (4).

Head narrower than the thorax, ovate, rarely large and transverse: neck distinct: eyes lateral, small, ovate and oblique. Thorax orbicular or ovate, truncated before: scutell rather large and trigonal. Elytra quadrate. Wings ample. Abdomen depressed, elongated, sublinear, with 3 lobes at the apex. Legs rather slender: coxæ, anterior very large (c): thighs with a few short spines beneath at the apex (f): tibiæ spined externally, with 2 long spines at the apex: tarsi, anterior a little dilated and cushioned beneath, 5-jointed, first 4 joints short, subcordate, gradually decreasing, 5th elongated and clavate (5).

MARGINATUS *Fab.*—*Curt. Guide, Gen.* 193. 16.

Black, shining; trophi, underside of basal joint of antennæ, sides of thorax and legs bright ochre; head small with many large punctures round the margins: thorax ovate-truncate with 4 lines of punctures, each containing 4, and 2 or 3 on the margins; elytra with an olive tint, thickly punctured and pubescent: abdomen inclining to chalybeous, pubescent and hairy; spines and hairs of legs, tips of thighs and posterior tarsi piceous.

PHILONTHUS makes so near an approach to Quedius, that it is not easy to separate them; the principal difference being the greater dilatation of the anterior tarsi in Quedius, and this is most evident in the typical species, which are also dissimilar in contour. The Philonthi are generally found about dung and dead carcasses or resting on stone buildings in the sun; they are also frequently met with on the wing in spring and summer, and they hibernate in moss, under bark, stones, &c.

1. Thorax impunctate.

1. *laminatus* *Creut.*—*Panz.* 67, 20. 2. *æneus* *DeG.* var.
3. *coxatus* *Curt.* Black, smooth, and shining, head and thorax eneous, the former small, punctured behind; elytra green, punctured and pubescent, abdomen with a purplish tinge; legs piceous, 4 anterior coxæ ferruginous: 5 lines long.

I have a single individual taken by myself, but having confounded it with *P. laminatus*, which it most resembles, I have no recollection of its locality.

4. *chalceus* *Step.* 5. *splendens* *Fab.*

2. Thorax with 4 punctures on the disc, 2 on each side.

6. *æratu*s *Kir.* Near London and in Suffolk, Mr. Kirby.

3. Thorax with 8 punctures on the disc.

7. *puncticollis* *Ste.* 8. *politus* *Linn.* The larva of this species probably is figured in the *Zool. Jour.* v. 3. pl. 2. f. 2.
9. *cognatus* *Ste.* 10. *microcephalus* *Ste.* 11. *melanopterus* *Kir.*
12. *maculicornis* *Kir.* 13. *decorus* *Grav.* 14. *carbonarius* *Gr.*
15. *cyanipennis* *Fab.* 16. *sericeus* *Ste.* 17. *pilipes* *Kir.*
18. *chalcopterus* *Mar.* 19. *atratus* *Gr.* 20. *fimetarius* *Gr.*
21. *lucidus* *Gr.* 22. *sordidus* *Gr.* 23. *subfuscus* *Gyl.*
24. *marginatus* *Fab.*

4. Thorax with 10 punctures on the disc.

25. *concinus* *Gr.* 26. *obscurus* *Gr.* 27. *varians* *Kir.*
28. *simplex* *Mar.* 29. *punctiventris* *Kir.* 30. *intaminatus* *Kir.*
31. *aterrimus* *Mar.* 32. *opacus* *Gr.* 33. *phæopus* *Kir.*
34. *nitens* *Gr.* 35. *obscuripennis* *Kir.* 36. *longicornis* *Kir.*
37. *agilis* *Gr.* 38. *ventralis* *Gr.* 39. *litratus* *Kir.*
40. *bipustulatus* *Fab.* 41. *aciculatus* *Ste.* 42. *sanguinolentus* *Gr.*
43. *bimaculatus* *Gr.* 44. *coruscus* *Gr.*

5. Thorax with 12 punctures on the disc.

45. *rubripennis* *Kir.* 46. *micans* *Grav.*

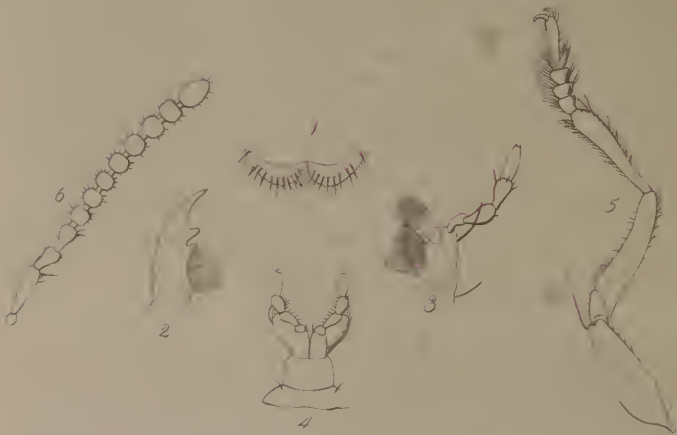
6. Thorax with 16 punctures on the disc.

47. *Watsoni* *Kir.* Yorkshire, Mr. P. Watson.

7. Thorax with upwards of 20 punctures on the disc.

48. *punctus* *Grav.* 49. *minax* *Kir.* 50. *impressicollis* *Ste.*

For specimens of the beautiful *Pulmonaria angustifolia*, (Narrow-leaved Lungwort,) I am indebted to the Rev. W. Darwin Fox, who transmitted them from Ryde last April, and also to Dr. Bromfield, who forwarded both species from Boldre near Lyminster in May.



Staphylinus

CAFIUS FUCICOLA.

ORDER Coleoptera. FAM. Staphylinidæ Lat., Leach.

Type of the Genus, Staphylinus xantholoma Grav.

CAFIUS Leach MSS., Sam., Curt.—Staphylinus Grav.

Antennæ inserted considerably before the eyes, remote, as long as the thorax, nearly straight, pilose and pubescent except at the base; 11-jointed, basal joint long, incrassated towards the apex, 2nd forming a slight angle with the 1st; scarcely so long as the 3rd which is subpyriform, the remainder moniliform, the apical joint ovate (6).

Labrum large, broad, semiovate and deeply notched in front, base corneous, the centre coriaceous, producing a series of spiny bristles and a membranous ciliated margin (1).

Mandibles very distinct, rather slender and acute, furnished with 2 teeth on the inside above the middle, below which is a membrane densely clothed with hairs (2).

Maxillæ rather large with an internal lobe densely clothed with long pubescence, the external one articulated and equally pubescent. *Palpi* rather long and robust, 4-jointed, the apex of all the joints pellucid, basal joint the slenderest, shortest, and curved, 2nd and 3rd of equal size, robust and pyriform, the latter having a few bristles round the top, 4th as long elongate-ovate, terminated by a vesicle (3).

Mentum transverse, very short, broadest at its base. *Labium* large subquadrate at its base and fleshy, then becoming cordate and forming two divaricating lobes ciliated with long hairs.

Palpi rather long, attached to 2 large scapes arising from the middle of the labium, 4-articulate, basal joint minute, 2nd and 3rd pellucid at the apex, the former subpyriform, the latter ovate, 4th longer and more slender, terminated by a vesicle (4).

Depressed. Head ovate-oblong, neck distinct. Eyes small, lateral, not at all prominent. Thorax not broader than the head, oblong-ovate, the angles being rounded. Scutellum triangular. Elytra half the length of the body and broader than the thorax, quadrate. Wings as long as the Abdomen which is as broad as the thorax, the sides elevated, the apex furnished with bristles. Legs rather short. Coxæ; anterior as long as the thighs. Tibiæ rather shorter, spined, especially the anterior and producing several spines at the apex. Tarsi 5-jointed, anterior pair dilated and very pilose in both sexes, 3 first joints somewhat cordate or trigonate, 4th slightly bilobed, 5th the longest, clavate (5, a fore leg): in the other feet the basal joint of the tarsi is as long as the terminal one.

FUCICOLA Leach MSS.—fuscicolor, Curtis's Guide, Genus 197. n. 1.

In the Cabinets of the British Museum and the Author.

THIS genus was established by Dr. Leach; but no characters have been given until now, and I shall here describe both the species.

C. fucicola Leach.—Curtis Brit. Ent. pl. 322.

Black or piceous, shining, with a few long hairs. Head broader than the thorax, the sides covered with large irregular punctures. Antennæ fuscous, excepting the three basal joints, which are shining black, ferruginous at their union, and the apical one is entirely of this colour. Thorax with a double row of three large and one small punctures on the back, and five on each side. Scutellum and elytra dull, with a faint blue tint, obliquely punctured, and clothed with very short depressed hairs. Abdomen minutely punctured, and clothed with short decumbent hairs. Legs ferruginous; thighs and tibiæ inclining to piceous at their middle.

Obs.—The longer line in the Plate shows the length of the specimen figured, but I have another considerably longer.

Dr. Leach used to take this nondescript on Mount Edgecombe, near Plymouth: to him I am indebted for my authentic specimen, and I took another last autumn on the shores of the Isle of Wight.

C. xantholoma Grav. Monog. p. 41. n. 3.—Hellwig.—lateralis Kars.—Kir.—littoralis & tessellatus Steph.

Black and shining, with a few long hairs. Head not broader than the thorax; two large punctures between the eyes, and several on each side. Antennæ fuscous, excepting the three basal joints. Thorax with a double row of three large punctures on the back, and a few on the sides. Scutellum and elytra dull, thickly punctured, and densely clothed with depressed pubescence; the latter oblong, and the lateral margins ochreous. Abdomen thickly and minutely punctured, with a large puncture on the side of each joint, clothed with pubescence, which in certain lights exhibits two or three rows of griseous spots down the back. Legs piceous, the joints and tarsi more or less ferruginous.

Obs.—The shorter line in the Plate shows the shortest length of this species: it is sometimes as long as the other line, but always narrower than *C. fucicola*.

It appears to be common on all our southern sandy coasts, under sea-weeds and stones. The end of May I have found it on the shores of the Southampton Water; in August and October at Black-gang Chine, Isle of Wight, at high-water mark; and in the latter month near Torquay, Devon. It has also been observed near Swansea.

The plant is *Euphorbia Portlandica* (Portland Spurge), gathered in the island, from which it receives its name.



ACHENIUM DEPRESSUM.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus Lathrobium depressum Grav.

ACHENIUM *Leach., Samouelle.* Lathrobium *Grav.* Staphylinus *Linn., Fab.*

Antennæ long, inserted before the eyes close to the base of the mandibles, filiform, pilose, 11-jointed, basal joint the longest, 2nd the shortest, the remainder clavate, of nearly equal length, terminal joint conical (fig. 6).

Labrum elongated, bilobed, lobes ciliated internally, and producing a few long bristles at their apex (1).

Mandibles large, bent, acute with 2 teeth on the internal edge, the lower one being the smaller (2).

Maxillæ with the terminal lobe small, and membranous at the apex, both densely clothed with soft hair on the internal margin.

Palpi 4-jointed, pilose, 1st joint small, 2nd and 3rd long clavate, 4th small papillæform (3).

Mentum triangular, anterior portion membranous, truncated.

Lip produced, forming a strong ciliated process on each side, and 2 rounded membranous lobes in the middle. *Palpi* arising near the centre of the lip, 3-jointed, 1st joint rather small, 2nd subovate robust, 3rd very slender (4).

Depressed. Head *obcordate*. Eyes *lateral minute*. Neck *cylindric distinct*. Thorax *ovate, truncated before, not concealing the contracted base of the alitrunk*. Scutellum *triangular*. Coleoptra *quadrate*. Wings *small, not so long as the elytra*. Abdomen *marginated*. Legs *robust*. Thighs *very robust, especially the anterior*. Tibiæ *simple, anterior slender, suddenly dilated towards the apex, ciliated and emarginate internally*. Tarsi *5-jointed, terminal joint the longest, the 4 basal in the anterior pair, very much dilated, pubescent, ciliated beneath with jointed or glandular hairs*. Claws *slender simple* (5, a fore leg).

DEPRESSUM *Grav. Coleop. Microp. p. 182. n. 6.*

Smooth, shining, pilose. Head and thorax polished, minutely and sparingly punctured, dark castaneous, the thorax having an obscure line down the centre. Scutellum black. Elytra bright ochraceous, black at the base, shaded into castaneous, lightly punctured somewhat in striæ. Abdomen minutely punctured, pubescent, pilose towards the apex, black, anterior margins of segments and terminal joint fuscous-ferruginous. Antennæ, mouth and legs bright ferruginous pilose. Palpi and tarsi ochraceous.

Obs. Specimens are generally less brilliant than the one figured, probably from their being immature.

In the Author's and other Cabinets.

It has been observed in the *Entomologist's Useful Compendium*, that *Lathrobium depressum* is the type of Dr. Leach's MS. genus *Achenium*. It is not our intention at present to enter minutely into the characters which distinguish it from that group; we shall therefore only observe that the antennæ are longer, and its form much more depressed than in the genus from which it has been separated.

Achenium depressum is extremely rare upon the continent, being only occasionally met with in Germany and Portugal, and has never before been figured: it was first discovered to be a native of our island by Dr. Leach, and has subsequently been met with by Mr. Chant, Mr. Bentley and Mr. Beck, to whom I am indebted for specimens: a few were taken by them upon the Hackney Marshes during a flood in the month of May.

The habit of our insect renders it probable that it lives beneath the bark of trees; yet its affinity to *Lathrobium* and the neighbouring genera, some of which are very much depressed and live under stones, induces us to think that its economy may be similar; and this latter opinion is strengthened by the recollection that the wings are scarcely more than rudiments: the anterior tarsi, as already described, are curiously covered beneath with transparent hairs having a moniliform appearance, which I should have considered peculiar to the males, had not all the specimens I investigated exhibited the same structure.

The beautiful plant figured, *Narthecium ossifragum* (Lancashire Asphodel), we found tolerably abundant in springy situations in Perthshire, and Mr. Dale has gathered it on Parley Heath, Dorsetshire.



LATHROBIUM TERMINATUM.

ORDER Coleoptera.

FAM. Staphylinidæ.

Type of the Genus, Staphylinus elongatus Linn.

LATHROBIUM Grav., Gyl., Dej., Curt.—Pæderus Fab., Payk.—Staphylinus Linn., Mars.

Antennæ inserted on each side the clypeus before the eyes, rather short, straight, filiform and pubescent; 11-jointed, basal joint stout, elongate-ovate; 2nd short, pyriform truncate, 3rd longer, the remainder short and subturbinate, apical joint ovate-conic, slightly acuminate (6).

Labrum transverse, notched in the centre, so as almost to form 2 large lobes, ciliated with very long bristly hairs (1).

Mandibles curved, the apex claw-shaped, with a deep fissure on the inside forming an obtuse tooth above and a trigonate shoulder below (2).

Maxillæ with a large ovate, very pubescent lobe on the inside, terminated by a smaller one very pubescent and densely ciliated with long hairs. *Palpi* rather stout clavate hairy and 4-jointed, basal joint small, 2nd and 3rd long, stout and clavate, the latter the longest, 4th short, slender and somewhat pear-shaped (3).

Mentum transverse, the sides with a few long bristles, angulated near the base, narrowed anteriorly, the margin concave. *Labium* long, constricted near the middle, dilated before, the centre cordate and transparent, the sides thickened pubescent and projecting, with a short spine at the apex. *Palpi* attached near the centre of the lip, composed of 3 elongated joints of nearly equal length, 2nd joint the stoutest, subovate, with a few long bristles, 3rd very slender and nearly linear (4).

Head small and ovate: eyes small: neck slender. Thorax oblong, convex, not broader than the head. Elytra oblong, scarcely broader than the thorax: wings ovate, short and broad. Abdomen very long and linear, the penultimate segment carinated beneath and notched in the males, the apex conical with a hairy process on each side. Legs short and stout: thighs stout, especially the anterior, which are angulated beneath towards the apex: tibiæ very short, anterior not longer than the thighs, with a lobe and cavity inside near the base, to receive the tubercle on the thigh: tarsi very short and 5-jointed, anterior dilated and cushioned beneath in both sexes, the others slender and hairy (5, a fore leg).

TERMINATUM Grav.—Curt. Guide, 201.

Black, shining, pubescent, trophi and base and apex of antennæ ferruginous, palpi piceous at the apex; head thickly punctured, excepting the crown; thorax more deeply punctured, with a smooth space down the back; elytra thickly but less strongly punctured, with a bright ferruginous spot at each apical angle: abdomen clothed with short subochreous pubescence: legs dark ochreous.

In the Author's and other Cabinets.

LATHROBIUM is closely allied to *Gyrophypnus*, from which it is distinguished by the much shorter basal joint of the antennæ, and the dilated anterior tarsi; from *Cryptobium** it is separated by its antennæ, which are not geniculated. The following are British species:

1. *quadratum* Payk.—*pilosum* Grav.?

Under stones, moss, moist banks, and in damp places at Battersea, &c.

1^b. *terminatum* Grav.—*Curt. Brit. Ent. pl.* 650.

Probably only a var. of *L. quadratum*: taken by the late Mr. Blunt, and Mr. A. Matthews finds it at Weston-on-the-green.

2. *brunnipes* Fab.—*dentatus* Mars.

Under moss, in winter, near Yarmouth, Mr. Paget; and under stones, near Swansea, Mr. Dillwyn.

2^b. *atriceps* Kirb. In Yorkshire and near London.

3. *elongatum* Linn.—*Don. v.* 16. *pl.* 573. *f.* 3.—*Panz.* 9. 12.

Common everywhere under stones, moss, dung, putrid vegetables, &c.

4. *fulvipenne* Fab. Panzer's Plate 17, No. 23, referred to by Mr. Stephens, is a *Pyrallis*, and the *P. fulvipennis*, 27, 24, of Panzer, is apparently a *Gyrophypnus*.

5. *rufipenne* Gyl. *v.* 3. *p.* 704.

5^b. *ochraceum* Mars. *MSS.*—*Step.*

6. *punctato-striatum* Kirb. The *Pæderus testaceus* of Olivier, referred by Mr. Stephens to this species, evidently belongs to another genus, the shape of the thorax being very different.

6^b. *punctulatum* Mannerheim.

7. *multipunctatum* Grav.—*axillare* Zieg.

8. *lineare* Grav.—*Gyll. v.* 2. 370. 6.

Common under stones, and amongst rejectamenta left by floods.

9. *longulum* Grav.—*minutum* Dej.

10. *fovulum* Step.

11. *nanum* Step.

12. *erythrocephalum* Step.

The Plant is *Milium* (Gastridium Beauv.) *lendigerum*, Pannick Millet-grass, from Ryde in the Isle of Wight, communicated by Dr. Bromfield.

* Genus 201^a. of the 2nd edition of the Guide, which is just published.



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TACHYPORUS LITTOREUS.

ORDER Coleoptera.

FAM. Staphylinidæ.

Type of the Genus, Tachyporus pubescens Gyll.

TACHYPORUS Grav., Gyll., Eric., Curt.—Conurus Step.—Oxyporus Fab.—Staphylinus Linn.

Antennæ inserted at the base of the labrum close to the eyes, longer than the head and thorax, clavate, pubescent, bristly and 11-jointed, basal joint the longest, stout, curved at the base, 2nd elliptic, a little shorter and stouter than the 2 following, which are a little thickened at the apex, 5th and 6th shorter and stouter, obovate-truncate, the remainder moniliform, subtrubinate, apical joint the stoutest and longer than the preceding, the tip subacuminated (6).

Labrum exserted, semiorbicular, bristly, the centre slightly notched and ciliated (1).

Mandibles rather small, subtrigonal, the apex forming an acute claw (2).

Maxillæ small, terminated by an ovate ciliated lobe, with a narrow and sublanceolate one inside, densely ciliated. *Palpi* short, hairy, subulate, 4-jointed, basal joint small, 2nd stout, obovate-trigonal, 3rd larger, obovate, 4th slender, subulate (3).

Mentum rather large, semiorbicular. *Lip* broad, forming a band at the base, the apex dilated, slightly notched in the middle, with a few rigid bristles. *Palpi* short, divaricating, attached to short scapes at the margin of the band, triarticulate, tapering, basal joint short, 2nd smaller, 3rd the smallest, all subovate (4).

Head *nutant*, ovate-trigonal: eyes lateral and close to the Thorax, which is large, convex and ovate, broad and truncated at the base, angles rounded: scutell triangular. Elytra truncated, quadrate or oblong, as long or a little longer, but sometimes scarcely so broad as the thorax, and a little attenuated: wings very ample. Abdomen twice as long as the elytra, but narrower and tapering, the apex producing a few long bristles. Legs compressed, anterior the shortest, hinder a little the longest: coxæ, anterior large: thighs, anterior dilated, except at the apex, hinder the slenderest: tibiæ, anterior clavate, with a spine at the apex, and a bristle near the middle, the others longer and spurred, the spurs very small in the hinder, with a few bristles about the middle, strongest in the intermediate: tarsi 5-jointed, anterior short, 4 basal joints cushioned beneath, obcordate, incrassated in the male, 5th long and slender, the others slender and rather long, especially the hinder, basal joint the longest, 4th the shortest: claws very slender.

LITTOREUS Linn.—cellaris Fab.—Curt. Guide, Gen. 203. 4.

Piceous, with greyish pubescence: thorax more or less ferruginous-brown, posterior angles ochreous: elytra oblong with a large ochreous oblique humeral macula: margins of abdominal segments subferruginous: antennæ and legs ferruginous, the former darkest in the middle.

I HAVE not been able to find essential characters for establishing the genus *Conurus* of Stephens, although he has placed *Cypha* between it and *Tachyporus*; the length of the abdomen depending on casualties in drying the specimens, can be no criterion, and the slight differences in the elytra will certainly not warrant their separation: the other differences noticed by Erichson can only be employed as sectional. On the other hand the remarkable genera *Deinopsis* and *Centroglossa* have been undoubtedly confounded with the Tachypori, and would have remained so if Mr. Matthews had not paid attention to that admirable test the trophi.

Mr. Stephens has named about 40 species of Tachypori, a very large portion of which, it is to be feared, will sink into varieties. Not having hitherto illustrated the true Tachyporidae, (for the Aleocharæ, as will be seen by our dissections, are a distinct race from this subfamily) I am happy to have found a neglected species of Linné's for that purpose. The following are typical Tachypori.

* *CONURUS* *Step.* Entirely silky: 4 anterior tibiae slightly bristly: mesosternum keeled. *Erich.*

1. immaculatus *Step.*—fuscus *Erich.* 391. 4?
2. bipustulatus *Fab.*—*Panz.* 16. 21.—bimaculatus *Grav.*?
3. littoreus *Linn.*—*Curt. Brit. Ent. pl.* 762.

A specimen was sent to me from Manchester by the late Mr. E. Hobson, and I took another, I believe, in the neighbourhood of London.

4. pubescens *Gyll.*—conicus *Mars.*
5. testaceus *Fab.* is probably a var. of *T. pubescens.*

** *Smooth and shining: sides of elytra bristly: mesosternum not keeled.* *Erich.*

6. dimidiatus *Fab.*
7. abdominalis *Fab.*
8. Hypnorum *Fab.*
9. nitidulus *Mars.* *Erichson* gives under *O. brunneus* *Fab.* the *T. nitidulus* and *abdominalis* of *Gyll.* as varieties.
10. marginatus *Grav.* *Erichson* considers a var. of *T. Hypnorum.*
11. melanurus *Mars.*
12. obtusus *Linn.*
13. analis *Grav.*—*Panz.* 22. 16. is a var. of obtusus. *Erich.*
14. marginellus *Mars.*—nigricornis *Gyll.*?
15. merdarius *Panz.* 27. 9.
16. chrysomelinus *Linn.*—*Panz.* 9. 14.—melanocephalus *Fab.*
17. pusillus *Grav.*
18. ruficollis *Grav.*

The elegant *Linnæa borealis*, Two-flowered Linnæa, is drawn from a dried specimen presented to me by Sir W. J. Hooker.



SYNTOMIUM NIGROÆNEUM.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus Syntomium nigroæneum Nob.

SYNTOMIUM *Nob.* Evæsthetus *Kirby?*

Antennæ inserted before the eyes at the base of the mandibles, longer than the head, clavate pilose, 11-jointed, 1st and 2nd joints nearly of equal size, robust ovate, 3rd as long but slender, the 5 following moniliform, the remainder forming a more robust mass, the 9th and 10th cup-shaped, the 11th ovate, with a transparent vesicle at the apex (6).

Labrum somewhat bilobed, corneous, membranous at the margin and producing a few bristles at the middle (1).

Mandibles slightly bent, acute, producing a membranous ciliated margin internally (2).

Maxillæ rather long and slender, terminated by a long articulated lobe, coriaceous at the base, membranous and pubescent at the apex, with a similar lobe on the inside. *Palpi* short 4-jointed, basal joint very minute, 2nd obtrigonal, 3rd robust oblong, 4th pear-shaped (3).

Mentum quadrate. *Labium* somewhat cordiform, membranous and ciliated, producing 2 short spines in the centre. *Palpi* arising near the base, short and rather robust, nearly filiform, triarticulate, terminal joint the smallest (4).

Head *subtrigonal*, the Eyes *remote and inserted at the base*. Thorax *broader than the head transverse ovate*. Scutellum *none*. Elytra *transverse-quadrate, covering only the base of the abdomen*. Wings *very delicate and ample, twice as long as the body*. Abdomen *as broad as the elytra, conical, depressed, the sides reflexed*. Legs *small and slender, anterior rather the shortest*. Tibiæ *simple*. Tarsi *very pilose, 5-jointed, the 5th joint as long as the first 4, which are very short*. Claws *bent and acute (5, a fore leg)*.

NIGROÆNEUM *Kirby's MSS.?*

Æneous-black, shining. Antennæ and legs castaneous, the base of the former and of the thighs and tibiæ blackish. Head thorax and elytra deeply sculptured with large punctures. Thorax with the sides serrated, posterior angles acuminate. Elytra much broader than the thorax with the posterior margin sinuated. Abdomen very minutely punctured, the sides elevated.

In the Author's and other Cabinets.

THIS curious little insect not agreeing with any genus described, I have been under the necessity of giving it a name. It is evidently related to *Proteinus* of Latreille in form, from which however it may be distinguished by its shorter elytra, which leave seven segments of the abdomen uncovered, as well as by its very differently formed palpi.

I have adopted the specific name, which I understand has been given to it by Mr. Kirby; and there is reason to believe that it is the new species of *Evæsthetus* mentioned in the "Introduction to Entomology," (vol. 4, p. 503.) as having been captured in a chalk-pit near Barham, Suffolk. For the specimens in my own cabinet I am indebted to Francis Walker, Esq., who took them out of moss, which was collected in the months of December and January, at Southgate, Middlesex.

The plant is *Thesium linophyllum* (Bastard Toad-Flax), for a specimen of which I am indebted to the Rev. Professor Henslow, who gathered it the middle of June in the Devil's ditch, Cambridgeshire.



Painted by J. Curran Apr. 1. 1861

LESTEVA LEACHII.

ORDER Coleoptera. FAM. Staphylinidæ Lat., Leach.

Type of the Genus, *Staphylinus caraboides* Linn.

LESTEVA Lat., Leach., Sam.—*Anthophagus* Grav., Gyl.—*Staphylinus* Linn., Fab., Payk., Oliv.—*Carabus* Panz., Marsh.

Antennæ inserted before the eyes, considerably longer than the thorax, slightly thickened towards the extremity and pubescent; 11-jointed, basal joint robust, subovate, the 3 following shorter, more slender and nearly equal in length, the remainder slightly increasing in length, more or less obovate, the apical joint the longest, conical (6).

Labrum pocket-shaped, the anterior angles rounded, notched in the centre and ciliated with long hairs (1).

Mandibles bent and acute, a small portion of the internal margin densely clothed with hairs; tridentate, the lower tooth in one, being very minute (2).

Maxillæ bilobed, internal lobe curved, pubescent and ciliated on the inside, external one slender, biarticulate, pubescent at the apex. *Palpi* not very long, 4-jointed, basal joint minute, 2nd and 3rd robust, subclavate, the former rather the longest, 4th as long as the 3rd, attenuated and compressed towards the apex (3).

Mentum transverse, very short, narrowed before. *Palpi* remote, triarticulate, basal joint small, rising from behind the mentum, 2nd robust, pilose, 3rd as long but slender and attenuated. *Lip* bilobed, slightly pubescent and pilose (4).

Head subtrigonal, with the neck sometimes distinct. Eyes small but prominent. Ocelli two. Thorax somewhat obcordate, narrowed and truncated behind. Scutellum triangular. Elytra depressed, oblong or subquadrate. Wings ample. Abdomen extending considerably beyond the elytra, subovate and frequently acuminate. Legs simple and slender. Tibiæ cylindric, gradually dilated to the apex, truncated and furnished with small spurs. Tarsi 5-jointed, very pilose beneath, 4 first joints emarginate in the anterior pair and truncated obliquely; the basal joint longer in the others; terminal joint the longest, clavate. Claws recurved at the base (5).

LEACHII Kirby MSS.

Smooth, shining, slightly pubescent and castaneous. Head black, with a very few scattered punctures and 2 longitudinal channels close to the eyes. Ocelli none. Trophi castaneous. Antennæ castaneous, subfuscous from the middle to the apex. 2nd joint the smallest, 3rd the longest, terminal joint not much longer than the antecedent. Thorax scarcely so broad as the head, somewhat hexagonal, very sparingly punctured, with a fovea at the fore part and 3 at the base. Elytra subquadrate, blackish towards the apex, rather thickly but faintly punctured. Abdomen black and sparingly punctured, the apex tinged with castaneous. Legs ochraceous.

In the Cabinets of the British Museum and Mr. Heysham.

THE genus *Lesteva* is rendered interesting from its type bearing a considerable resemblance in many respects to some of the *Carabidæ*; from which circumstance it has received the specific name of "*caraboides*."

Our British species are,

1. *L. Leachii* *Curtis Brit. Ent. pl.* 303.—Although this species has been placed at the head of the genus, it departs so far from the type, especially in the relative proportions of the joints of the antennæ and the absence of the ocelli, that it must form a division of it. There are 3 specimens of this fine insect in the British Museum, taken, I believe, by Dr. Leach, and named after him by the Rev. W. Kirby. The example figured was captured by T. C. Heysham, Esq. on the banks of the river Eden, near Holme Gate, Cumberland, the 18th of October, 1829.
2. *L. caraboides* *Linn. — Marsh. p.* 521. — *Gyl.* 2. 192. — *Oliv.* 3. n° 42. *pl.* 2. f. 17.—*abbreviatus* *Fab. — Panz.* 36. 2.—*fulvus* *DeG.*—April, May, and June, under stones, on paling, dead leaves, &c.
3. *L. canaliculata* *Kirby MSS.*—I took 2 specimens under a rock, in July, in Scotland, but I cannot remember whether it was on Craig-calloch or in the Isle of Arran: it has also been taken in Cumberland, in June.
4. *L. Hookeri* *Kirby MSS.*
5. *L. alpina* *Lat. — Fab. — Gyl.* 2. 194. — *Oliv.* 3. n° 42. *pl.* 6. f. 55.—On Sallows and Fir-trees.
6. *L. testacea* *Grav. Microp. p.* 121.
7. *L. obscura* *Grav. — Payk. — Gyl.* 2. 198.—*bicolor* *Fab. ? — staphylinoides* *Mar.* 464.—*punctulata* *Lat. — Sam. — dimidiatus* *Panz.* 36. 3.—Found in March, April, and May, under stones in moist places, near rivers.
8. *L. plagiata* *Payk., Fab. — Gyl.* 2. 195.
9. *L. rufitarsis* *Kirby MSS.*
10. *L. impressa* *Kirby MSS.*
11. *L. planipennis* *Kirby MSS.*

The plant is *Ophioglossum vulgatum* (Common Adder's-tongue).



SIAGONUM QUADRICORNE.

ORDER Coleoptera. FAM. Staphylinidæ Lat., Leach.

Type of the Genus *S. quadricorne* K.

SIAGONUM Kirby *Introduction to Entomology*.

Antennæ half the length of the insect, pubescent and hirsute, straight, articulated; gradually increasing in size from the second joint (which is smaller than the first) to the extremity; terminal joint obovate. (f. 6.)

Labrum exerted, transverse, bilobed, ciliated. (1.)

Mandibles of male much longer than the head, produced externally far beyond the apex, which has the appearance only of a strong tooth, ciliated internally (2.): of female, broad at their base, hooked, very slightly produced externally. (2. a.)

Maxillæ divided internally, ciliated; terminal process dilated, rounded, composed of parallel, transverse ribs, detached at the apex: *Palpi* 4-jointed, first joint small, last cylindric-ovate, terminated by a globular gland. (3.)

Mentum transverse, broadest at the base, lobed in the centre behind, and obtusely pointed before: *Palpi* appearing 4-jointed, all the joints corneous only at the base, last joint the longest.

Lip dilated anteriorly, bilobed, ciliated. (4.)

Head not broader than thorax, with a horn on each side before the eyes in the males (vide the coloured figure): females without horns (fig. 7.).

Thorax narrowed behind. Elytra longer than broad. Abdomen linear, 6- and 7-jointed. Legs very short and small. Tibiæ ciliated internally, and serrated (except in the last pair) externally, spined. Tarsi 5-jointed, last joint equal in length to the other four (5. a fore-leg). Wings long, broad, transparent, with only 3 short nerves at the base.

QUADRICORNE Pl. 1. f. 3. Kirby and Spence's *Int. to Ent.*

Depressed, shining, punctured; antennæ and abdomen pilose. Head nearly black. Horns, mandibles, antennæ and legs reddish brown. Thorax deep chesnut, quadrate, narrow behind; anterior margin rather convex in the centre, angles slightly produced, rounded, with a smooth line of colour down the centre. Elytra chesnut colour, brightest towards the centre, with 2 branched and 2 simple-punctured striæ on each. Abdomen blackish, with the edges of the segments reddish brown.

In the Cabinets of Mr. Kirby, Dr. Stephenson, and the Author.

A FIGURE of *Siagonum quadricorne* was given in the 1st vol. of the *Introduction to Entomology* by Mr. Kirby, who took a

male in Suffolk several years since; but as the characters have not yet been published, I have endeavoured to supply them until the completion of that work. Its natural situation appears to be between *Bledius* and *Oxytelus*, to which it is united by the spined tibiæ and uncommon length of the last joint of the tarsi. In most insects, as well as in the higher orders of animals, where the males have horns, the females have only tubercles, or are entirely destitute of those ornaments, as in the present instance: they not only add much to their beauty, but are very serviceable in defending themselves against their enemies, as well as giving them a decided superiority over the other sex. The coloured figure is a male, drawn in perspective, to show better the horns upon the head, which makes it appear rather more narrow than the life.

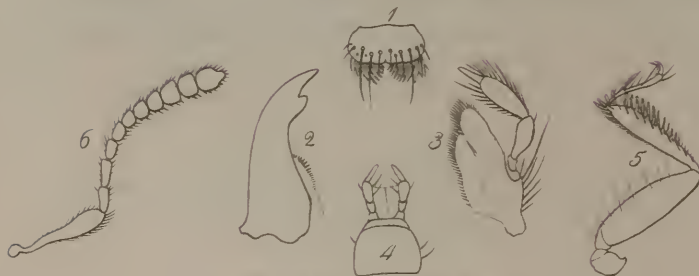
Whether the specimen represented in the Plate is the same species as that figured by Mr. Kirby I cannot positively determine, although I have the original drawings for the Introduction to Entomology in my possession: but from the brightness of the colours, and the want of foveolæ upon the thorax of my specimens, I considered it at first another species, and had called it *S. corticalis*.

Dr. Stephenson having taken a male at Kensington, and directed me to the spot, I had the pleasure of finding 2 males and as many females in March 1823 under the bark (of a felled tree), where it adhered the firmest; and during the summer of that year, Mr. Denny, I am informed, found a pair in Norfolk. From its short legs and flat form it is enabled to lie very close under the bark, and did not appear to be very active at the early period of the year when I captured it.

Mnium hornum (Thread Moss), figured with the insect, is magnified about four times.



Fumaria hyemalis



Phaedon fuscicornis

BLEDIUS SKRIMSHIRII.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus Staphylinus tricornis Payk.

BLEDIUS *Leach.* Staphylinus *Payk., Oliv., Herbst., Panz.* Oxytelus *Grav., Lat., Gyll., Leach.*

Antennæ inserted before the eyes, geniculated, subclavate, pilose, 11-jointed, basal joint long clavate, 2nd and 3rd nearly of equal length, the 4th and 3 following subglobose, the remainder more robust, cup-shaped, terminal joint subovate (fig. 6).

Labrum transverse oval, anterior margin sinuated, producing horny bristles, some of which are furcate, and from the upper surface arises a transverse line of moveable long bristles (1).

Mandibles long and bent, with a strong tooth on the internal margin near the apex, membranous near the base and ciliated (2).

Maxillæ long, strongly ciliated, bilobed, internal lobe very thin.

Palpi large 4-jointed, basal joint minute, 2nd large clavate, 3rd longer very pilose, elongate ovate, 4th slender, elongate cylindric (3).

Mentum semicircular. *Lip* rather long, slightly notched, ciliated.

Palpi arising from short membranous scapes near the base of the lip, 3-jointed, basal joint short, 2nd long clavate, 3rd slender cylindric (4).

Head rather long, armed with lateral horns, very small, or wanting in the females. Eyes small, very prominent. Thorax of the males armed with a long horn in front. Scutellum minute. Coleoptra quadrate, angles rounded. Abdomen alike in both sexes, depressed, margined. Wings long and ample. Tibiæ, 4 anterior short compressed, armed with strong teeth, posterior pair the longest and slenderest. Tarsi 4-jointed, penultimate joint clothed with long hair, terminal joint longer than the others united, pilose. Claws long (5, a fore leg).

SKRIMSHIRII nob.

Male. Black glossy, elytra ochraceous. Head black, with the anterior part produced on each side, forming 2 long thin vertical horns, castaneous at their apex. Trophi ferruginous. Thorax scutiform, convex, black, shagreened, having large punctures thinly scattered and a channel down the middle, produced at the anterior angles, and in the front over the head in the form of a horn, castaneous and pilose at the apex. Elytra sparingly and coarsely punctured, bright ochre, the scutellum and a considerable triangular space surrounding it blackish. Abdomen black shining, very minutely punctured, apex ferruginous. Antennæ and legs castaneous, tarsi and hair on tibiæ bright ochre (7, head and thorax in profile).

Var. β. Horns on head and thorax shorter. Elytra dull castaneous. Abdomen slightly pilose.

In the Cabinets of Mr. Skrimshire, Mr. Stephens, and the Author.

DR. LEACH first proposed separating *Bledius* from *Oxytelus*; but no characters have hitherto been given: the curious horns that arise from the head and thorax of the male are sufficient to distinguish it from that genus.

We can now record two species.

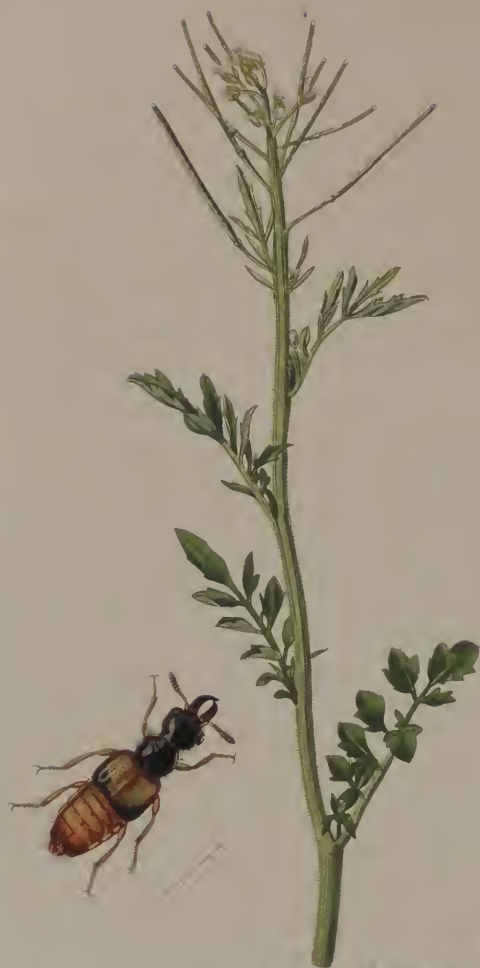
1. *B. tricornis* Payk., *Oliv. tab.* 6. *f.* 56. *a. b.*—*armatus* Panz.
Faun. Germ. 66. 17. *Trans. Ent. Soc.* *p.* 97. *tab.* 7. *f.* 3.

About 16 years ago Mr. G. Skrimshire first discovered this insect on the banks of rivers in Cambridgeshire, and it was afterwards detected by the Rev. T. Skrimshire and the late Rev. I. Burrell from the end of April to the middle of July on the Sandhills at Cley, Norfolk.

2. *B. Skrimshirii* nob.

It is with sincere pleasure that we avail ourselves of the opportunity of naming this fine and remarkable insect after its captor, the Rev. T. Skrimshire, whose zeal and liberality have enabled us to present our readers with this striking novelty, as well as his own observations upon the economy of the genus. "They were all taken upon the sea shore at Holkham. The live ones in crevices in the sand or rather loam of which the sea banks are raised and covered with *rejectamenta maris*. The dead male which I sent you was found upon the dry sandy hills in company with myriads of *B. tricornis* all dead, and deposited there by the wind, though I have not yet discovered a regular habitat of the latter insect in this neighbourhood. In the month of June I have found many of the *B. tricornis* in the same situation, under the *rejectamenta maris* in crevices of the sea bank, mostly females: I conceive they get into these situations after the regular season is over to deposit their eggs, or to hibernate, as they are by no means so lively as represented by our late friend Mr. Burrell in the Transactions of the London Entomological Society, and are a month later, though I have taken *B. tricornis* at Wisbeach still later, in July, and in their proper habitat."

Funaria hygrometrica (Little Golden-locks, Golden Maiden-hair), magnified about 4 times, is figured in the plate.



Cicindela longicollis



Cicindela longicollis

OXYPORUS MAXILLOSUS.

ORDER Coleoptera. FAM. Staphylinidæ.

Type of the Genus, Staphylinus rufus Linn.

OXYPORUS *Fab., Oliv., Grav., Curt.*—*Staphylinus Linn. &c.*

Antennæ clavate pilose, not longer than the head, remote, inserted close to the eyes at the base of the mandibles, 11-jointed, basal joint the longest and stouter than the 4 following, 2nd and 3rd oblong, 4th and 5th somewhat obtrigonal, the remainder forming an elongate ovate club, composed of cup-shaped joints, excepting the terminal one which is suborbicular, the apex compressed (6).

Labrum membranous, subquadrate, deeply and acutely notched in the centre and ciliated (1).

Mandibles long and porrected, slightly curved and pointed (2).

Maxillæ terminated by an elongated dilated rounded lobe, pubescent towards the apex, with a long sub lanceolate one on the inside ciliated. *Palpi* longer than the maxillæ, 4-jointed, basal joint minute, 2nd the longest, 3rd shorter, both clavate, with a few bristles towards the apex; 4th scarcely so long as the 3rd, slenderer and elongate ovate (3).

Mentum broadest at the base, narrowed and cleft at the apex.

Labium narrow and subovate, pilose at the apex, on each side are inserted the *Palpi* which are triarticulate, basal joint short and slender, 2nd long and clavate, 3rd large crescent-shaped (4).

Head scarcely broader than the thorax, nearly orbicular. Eyes rather small, placed at the anterior angles of the head. Thorax orbicular, truncated before. Scutellum minute. Elytra subquadrate, broader than the thorax, the angles rounded. Wings ample. Abdomen nearly as broad as the elytra and twice as long, the sides thin and elevated, tapering suddenly at the apex. Legs rather short. Thighs a little stouter than the Tibiæ which have minute spurs at the apex. Tarsi simple in both sexes, short and 5-jointed, 4 first joints short, 5th as long as the others united. Claws slender and hooked (5, fore leg).

MAXILLOSUS *Fab. Ent. Syst. 1. b. 531. 2.*—*Curtis's Guide, Gen. 219. 2.*

In the Cabinets of the British Museum and Mr. Kirby.

THIS beautiful genus is well characterized by its short and stout antennæ and abdomen, and particularly by the form of the labial palpi; yet notwithstanding these admirable characters, it appears to me to be very difficult to assign to the genus its proper situation. Latreille commences the Staphylinidæ

with it, and considers it allied to *Astrapæus*, which has the habit of *Quedius*, and is nearly related to *Goerius*. Fabricius places it between *Stenus* and *Pæderus*, Gyllenhal between *Lomechusa* and *Bledius*, and Dr. Leach between *Dianous* and *Oxytelus*. As many of these genera have been illustrated in this work, I shall leave entomologists to draw their own conclusions on the subject.

There are only 2 species inhabiting Europe.

1. *O. rufus* Linn. *Faun. Suec.* 231. 844.—*Panz.* 16. 19.—*Sam. pl.* 4. f. 11.

Smooth shining rufous, head and mandibles black: elytra black with a large ochreous spot on each shoulder, a line of punctures on each side the suture, and 2 others abbreviated on the disc of each elytron, with a few scattered punctures between them: abdomen with the two last joints black, as well as a broad mark on the antepenultimate segment: breast, coxæ, trochanters and base of thighs black.

Mr. Brightwell of Norwich once took me to a corn-field at Thorpe near that city, where a great number of fungi were growing, and we scarcely found one that did not contain several specimens of this pretty insect. I have also beaten it out of Brambles and White-thorns: it is therefore probable that it is likewise carnivorous.

2. *O. maxillosus* Fab.—*Curt. Brit. Ent. pl.* 418.

Smooth shining and ochraceous: maxillæ variegated with castaneous: head and thorax black, pitchy castaneous beneath, the former sometimes with 2 castaneous spots before, the latter with one above the scutellum: elytra lurid ochre, the posterior angles black, with a line of punctures on each side the suture, and two deep abbreviated ones on the disc of each elytron, with a few punctures scattered between them: abdomen reddish ochre, with a line of obscure brown spots down the middle.

Said to have been taken I believe in Suffolk and Devonshire, but very rarely. It is remarkable that this insect should have been found in England, since it is not an inhabitant of Sweden, and has never been discovered I understand in France.

The Plant is *Cardamine hirsuta* (Hairy Ladies' Smock).



PHYTOSUS SPINIFER.

ORDER Coleoptera.

FAM. Staphylinidæ.

Type of the Genus, Phytosus spinifer Rudd.

PHYTOSUS Rudd.

Antennæ inserted before the eyes, close to the base of the mandibles, not much longer than the head and thorax, geniculated, clavate, pubescent, 11-jointed, basal joint the longest, stoutish, cylindric, 2nd nearly as long and stout but attenuated to the base, 3rd much smaller, pyriform, the remainder submoniliform, 4th globose, 5th broader, the following increasing slightly in diameter and somewhat cup-shaped, apical joint larger and ovate (6).

Labrum transverse-oval, anterior margin nearly straight, and ciliated with strong bristles, the centre membranous (1).

Mandibles porrected, elongated, slightly curved at the apex which is obtuse, inner margin with a narrow ciliated membrane (2).

Maxillæ narrow, terminating in 2 lobes, the inner one ciliated, with a bundle of short spines at the base, the outer narrow, a little longer, curved, the apex membranous and pubescent.

Palpi longish, aciculated and 4-jointed, basal joint slender clavate and curved, 2nd stout, thrice as long and semiovate, 3rd much longer, stout, clavate and hairy, 4th a short slender process (3).

Mentum large, trigonate, truncated before, with a very long bristle at each angle. *Lip* short. *Palpi* attached to 2 elongated scapes, biarticulate, basal joint oblong with 3 or 4 bristles, 2nd a little shorter, clavate-truncate (4).

Male smaller than the female. Head moderate, suborbicular: eyes small, lateral and orbicular. Thorax not longer than the head, but a little broader, somewhat obovate, with a short curved spine in both sexes, on each side beneath, near to the head (7,s): scutel small. Elytra not broader than the thorax in the male and very short, broader and longer in the female: wings ample. Abdomen long, dilated in the male towards the apex which is obtuse and rounded, but conical in the female. Legs rather small: thighs broad and compressed: tibiæ short, 4 anterior with series of short stout spines on the outside, that on the edge composed of 7 rays (5): hinder hairy, with a spur at the apex (+): tarsi with long hairs beneath, 4, 4 & 5-jointed; 4 anterior very short, 3 basal joints very short, 4th elongate-clavate, hinder with the basal joint a little longer than the 2nd but shorter than the 5th: claws curved, acute. Obs. The dissections were taken from a female.

SPINIFER Rudd's Mss.—Curt. Guide, Gen. 215*.

In the Cabinets of Mr. Rudd and the Author.

THE spiny anterior tibiæ in *Phytosus* seem to indicate that it burrows, and render it not improbable that the æconomy of this insect is similar to *Hesperophilus* and *Bledius* (pl. 143), to which it is undoubtedly allied, the trophi having a great resemblance; the antennæ however readily distinguish them, the 2 basal joints being equal, and the 3rd short. *Phytosus* is likewise related to the *Aleocharæ*, as will be evident on referring to the dissections of *Homalota* (pl. 514); but it is more nearly allied to other groups of this extensive division of the *Staphylinidæ*, and it is very probable that *Astilbus canaliculatus*, which has the anterior tarsi alone 4-jointed, may prove to be one of the connecting links.

The extraordinary difference in contour, size, and colour in the two insects represented in our plate would lead to a belief that they were not the sexes; but they agree in structure and are found together, so that no doubt is entertained on that head.

The following is the description of

P. spinifer Rudd.—*Curt. Brit. Ent. pl.* 718 ♂ & ♀.

Male pale fulvous, thickly and minutely punctured, and clothed with short depressed shining yellowish hairs; head brownish, eyes black; thorax depressed down the middle; abdomen black, basal and apical segments castaneous.

Female dull black, thickly and minutely punctured, clothed with very short depressed shining yellow pubescence; trophi, antennæ and legs ochreous, the former and the apical joint of the antennæ darker; coxæ and thighs castaneous and black; elytra with a small space at the apex of the suture reddish; abdomen shining black, slightly chestnut at the apex, 6th segment with the margin of the same colour, the edge white.

Specimens of this nondescript species were discovered by the Rev. G. T. Rudd last May, just above high-water mark on the shore between Ryde and Sea-view in the Isle of Wight. It appears to burrow in the moist sand, amongst which it was found by shaking the sand over a green calico net. For my specimens, as well as others for dissection, I am indebted to the captor.

Zannichellia palustris, var. *Z. dentata* Wild. (Horned Pondweed) was communicated by Dr. Bromfield. Fig. A shows an anther, s the stigma.

14.13



Thomisus laticollis (Hbst.)

Des. by F. Curtis Mar. 1. 1832

CALLICERUS SPENCII.

ORDER Coleoptera. FAM. Staphylinidæ.

Type of the Genus, Callicerus obscurus Grav.

CALLICERUS Grav.—Aleochara Curt.

Antennæ inserted before the eyes, more than half the length of the insect, stout clavate pubescent, 11-jointed, basal joint ovate, 2nd as long subclavate, 3rd a little shorter, obovate-truncate, 4th subglobose, the remainder remotely articulated, the 5 following becoming more transverse, 10th large oblong, 11th very large, elliptic-ovate (6).

Labrum exserted, coriaceous, pocket-shaped, furnished with a few bristles (1).

Mandibles small narrow and curved, the apex forming a long tooth or claw, with a broad membranous margin on the inside (2).

Maxillæ small, forming two narrow lobes above, rounded and pubescent at the apex, the external one extending considerably beyond the other. *Palpi* capitate, 4-jointed, basal joint minute, 2nd stout, subclavate, 3rd very large, ovate and pilose, 4th joint small conical and transparent (3).

Mentum large, subtrigonal, truncate. *Lip* transverse, rounded, with 2 small lobes in the centre. *Palpi* arising from the anterior angles of the lip, small, attenuated and composed of 3 oblong joints, basal one the stoutest, apical joint slender and rounded at the tip (4).

Head orbicular, narrowed before: eyes small lateral. Thorax larger and somewhat orbicular. Scutellum triangular. Elytra considerably broader than the thorax, subquadrate, the shoulders rounded, the posterior angles slightly uncinated. Wings ample. Abdomen half the length of the insect, narrower than the elytra, the sides margined. Legs slender. Coxæ, anterior large, ovate. Thighs broad, attenuated to the apex. Tibiæ slender and simple. Tarsi very slender, anterior rather the shortest, 5-jointed, terminal joint a little the longest. Claws long and slender (5).

Obs. *Callicerus Spencii* was the species dissected.

SPENCII Kirby.—Curt. Guide, Gen. 221, 49.

Dull black, excessively thickly and minutely punctured, and clothed with grey pubescence; mouth ochreous brown, antennæ lurid, excepting at the base, head slightly hollowed down the crown, with a small fovea between the eyes: thorax with a faint channel: elytra dull brown inclining to castaneous: abdomen shining, sparingly and obscurely punctured: legs ochreous, thighs piceous at the base.

In the Cabinets of Mr. Haliday, Mr. Walker, and the Author.

IN the 1st volume of the *Mémoires* presented to the Imperial Academy of Sciences at St. Petersburg, is an admirable paper upon the Brachelytres by Count Mannerheim, in which the Aleocharæ are divided into several genera and other groups, but I do not observe amongst them the subject before us, owing probably to its extreme rarity abroad. It is to be regretted that the memoir above alluded to has been published in a work that from its size and expense is not likely to find its way into the hands of many of our British Entomologists: I hope, therefore, to see it transcribed into some of our periodicals, so that it may be more easily consulted.

For specimens of the curious genus *Callicerus* I am indebted to my friend A. H. Haliday, Esq. who accompanied them with the following remarks, &c. between inverted commas.

1. *C. Spencii* Kirby.—*Curt. Brit. Ent. pl.* 443.

“Taken at Holywood, near Belfast; before the vernal equinox it occurs occasionally in the shelter of furze bushes; in the first burst of spring I have found it abundant on the fresh grass of sunny banks, not associating with the coprophagous Aleocharæ: as summer advances it disappears entirely. While it is in motion the antennæ and especially the thick joints of the tip are continually quivering in an extraordinary degree: the membranous suspension of the basal joints seems adapted to give those organs a high degree of versatility.”

Mr. F. Walker has swept it off grass at Southgate in May.

2. *C. hybridus* Hal. MSS.

“Size and figure of *C. Spencii*; thorax somewhat broader, 4th to 9th joints of antennæ not so short, gradually increasing, 10th scarcely one half longer than the 9th, the rest as in *C. Spencii*, and the palpi similar. Head and thorax opaque dusky black; elytra rufescent, disk suffused with brown; abdomen black, margins of segments rufescent; legs ferruginous, antennæ and palpi darker.

A single specimen taken at Holywood with the preceding species,” by Mr. Haliday.

I have not sufficiently studied the Aleocharæ to ascertain the exact situation of *Callicerus*, but for the present it may very well be placed I think between *Drusilla* and *A. longitarsis*.

The plant is *Tamus communis* (Black Briony).



HOMALOTA DIMIDIATA.

ORDER Coleoptera.

FAM. Staphylinidæ.

Type of the Genus, Aleochara plana, Gyll.

HOMALOTA Mann. ? *Dej., Step.*—*Aleochara Grav., Gyll.*

Antennæ inserted before the eyes, near the base of the mandibles, as long as the head and thorax, clavate, pilose and 11-jointed, basal joint stout oval, 2nd and 3rd of equal length, nearly as long as the 1st, but more slender and clavate, the remainder cup-shaped distinctly articulated and increasing in size, the apical joint being as large as the basal one and conical (6).

Labrum transverse, pocket-shaped with scattered bristles above and on the anterior margin (1).

Mandibles rather long and narrow, terminated by a long curved claw, one having a short tooth on the inside, with an excavation below it, filled by a thin ciliated membrane (2).

Maxillæ terminated by 2 lobes, the internal one long slender and densely hairy on the inside, the external one broader, a little longer and very hairy at the apex. *Palpi* longer than the maxillæ, aciculated, 4-jointed, basal joint very short and slender, 2nd long and clavate, 3rd as long, stouter oval and pilose, 4th short and very slender (3).

Mentum short and broad, narrowed a little before. *Lip* long, basal portion quadrate and narrower than the mentum, terminated by a transverse oval lobe, with 2 divaricating obtuse spines at the centre. *Palpi* short, attached to 2 scapes, triarticulate basal joint the longest and stoutest, 2nd subglobose, 3rd shorter than the 1st, very slender and obtuse (4).

Head *rather smaller than the thorax, orbicular, depressed: eyes small and lateral. Thorax depressed and orbicular, a little truncated before: scutellum small trigonate. Elytra a little broader than the thorax, length a little exceeding the breadth and slightly narrowed before. Wings ample. Abdomen equal in length to the rest of the insect, and a little broader than the elytra towards the apex. Legs short. Thighs rather broad and compressed: tibiæ simple narrowed at the base, with small spurs at the apex: tarsi 4-jointed, rather broad, 2 first joints somewhat obovate, basal one the longest in the hinder pair, 3rd shorter and subcordate, 4th short and obovate: claws very slender* (5).

Obs. *The dissections and characters are from the species figured.*

DIMIDIATA Grav. Mon. 149. 3.—*angustula Gyl. var. e, 2. 394.*—*basella Kirb. MSS.—Step.*

In the Cabinets of the British Museum, Mr. Rudd and the Author.

BEFORE making any observations upon the species illustrated, it will be necessary to transcribe Mannerheim's outline of his genus *Homalota*, viz.

"Maxillary palpi short, the last joint subulated: mouth not rostrate: tibiæ unarmed: head more or less exerted: thorax frequently rounded, the angles scarcely deflexed: antennæ not abruptly incrassated, but gradually thickening to the apex: head subsessile; base of the thorax never broad: last joint of the tarsi equal to the others united."

It is evident that the insect dissected and described on the opposite page does not agree with the essential character of *Homalota*, the terminal joint of the tarsi being scarcely so long as the basal one. Whether this be a sexual distinction only I know not; but as Dejean, who has adopted Mannerheim's Genera, has included the *A. dimidiata* Grav. in that genus, I have preferred letting it remain rather than multiply names by separating it. The type of the genus is

1. *H. plana* Gyl. 2. 402. 24., and the following are his characters:

"Elongate-linear depressed, black somewhat opaque, punctulate, antennæ, legs and anus fuscous-ferruginous, thorax obscurely channelled, elytra quadrate piceous: scarcely a line long."

Specimens, it is believed, of this insect were taken at Croft in Yorkshire last April, under the bark of a decaying Elm, in company with *Prognathus quadricornis* and *Agathidium nigripenne*, and afterwards in June in the New Forest, under the rotten bark of an Oak, by the Rev. G. T. Rudd.

2. *dimidiata* Grav.—*Curt. Brit. Ent. pl.* 514.

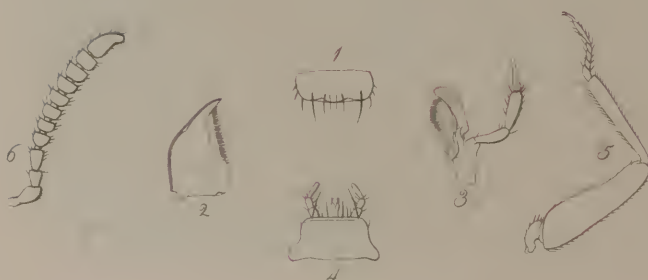
Rather dull black, thickly and minutely punctured, clothed with very short yellowish pubescence; antennæ brown, 4 basal joints and trophi ochreous: head sloped off in front; thorax hollow on the back, with an obscure channel: elytra bright ochre with a narrow transverse black band at the base: legs ochreous.

The Rev. John Preston informs me that he took this interesting species at Askham Bogs, near Tadcaster in Yorkshire, in the spring of the present year: they were extremely local, and occurred only in large tufts of grass, which abound in that locality. The best mode of capturing them was found to be by beating the tufts into a net. The agility of this insect is truly remarkable, and it runs with amazing rapidity. It was also taken at the same place by the Rev. G. T. Rudd and Thomas Meynell, Esq., who were directed to the spot by their friend Mr. Preston, and to the former of these gentlemen I am indebted for my specimens.

The Plant is *Anthoxanthum odoratum* (Spring Grass).



Scaphium angustifolium



Scaphium angustifolium

LOMECHUSA DENTATA.

ORDER Coleoptera. FAM. Staphylinidæ.

Type of the Genus, Lomechusa dentata Grav.

LOMECHUSA Grav., Gyll., Curt.—Dinarda Leach, Curt.—Staphylinus Payk., Fab.

Antennæ inserted close to and before the eyes, short stout, subfusiform, pubescent and pilose, 11-jointed, basal joint subpyriform, 2nd the smallest, 3rd larger obovate-truncate, the 7 following cup-shaped, gradually increasing in size, 11th the longest subovate, the apex curved, and furnished with a gland (6).

Labrum transverse, the angles rounded, with a small convex space at the middle producing a few bristles (1).

Mandibles subtrigonal, rounded externally, acute at the apex, the internal margin membranous, with the edge very pubescent (2).

Maxillæ terminated by 2 lobes, the internal one the broadest, very pubescent on the inside and thickly ciliated, the external one longer and more slender, pubescent also. *Palpi* rather long and 4-jointed, basal joint minute, 2nd long subclavate, 3rd longer stouter and pilose, 4th nearly as long as the 2nd; slender and attenuated (3).

Mentum transverse, dilated at the base, angles rounded. *Palpi* inserted behind the anterior margin, remote, short and pilose, triarticulate, basal and 2nd joints short, 3rd longer, slender and linear. *Lip* small, narrow and bifid, each lobe producing a small glandular appendage (4).

Head small suborbicular: eyes small and lateral. Thorax broader than the elytra, semicircular, the anterior margin concave, the posterior convex, the angles produced and acute. Scutellum triangular. Elytra transverse, not longer than the thorax, the external posterior angles acute. Wings ample. Abdomen half the length of the insect, subovate depressed, the sides margined. Legs short and slender. Tibiæ simple. Tarsi very slender and 5-jointed, basal joint a little longer than the 3 following which are very short, 5th long and clavate. Claws slender, slightly hooked (5).

DENTATA Grav. *Coleop. Microp.* 181. 4.—Curt. *Guide, Gen.* 223. 1.

Castaneous shining, thickly punctured and clothed with short rigid bristles: antennæ black, except at the base and apex; head and disc of thorax dull black, the sides of the latter slightly reflexed with a faint channel down the centre: scutellum black. Abdomen less thickly punctured and pilose, the base of the segments blackish, the apical joint ochreous.

In the Cabinet of the British Museum.

As I do not find that the slight differences between *L. dentata* and its congeners are sufficient to justify the division of them into 2 genera, as proposed by Dr. Leach, I shall include all the species in the genus *Lomechusa*.

The following specific characters I have taken from Gyllenhal. It seems that these insects are generally found in ants' nests; it is not ascertained whether they feed upon the ants, which is very likely, and from the rarity of all the species in this country, there is little hope of our learning much of their œconomy.

1. *L. dentata* Grav.—Curt. Brit. Ent. pl. 410.—strumosus Payk.

The only British specimen I have seen is in the British Museum. In Sweden it is found under stones in dry sandy places, in company with *Formica rufa*.

2. *L. paradoxa* Grav.—Gyll. 2. 438. 2.—Ahrens 5. f. 12.—acuminata Kirby.

Fuscous-red, somewhat opaque, elytra and legs pale testaceous, antennæ short, filiform, posterior angles of thorax and elytra slightly prominent, thorax smooth, with a fovea on each side.—Gyll.

Taken in Taverham Park, Norfolk, by Mr. Wilkin; in sand-pits at Bexley, Kent, the end of May by Mr. Haliday, and at High Bickington, Devon, by Mr. Cocks. Under stones in company with a little black Ant, in the spring, in Sweden.

- 2^a. *L. emarginata* Fab.—Grav.—Gyll. 2. 440. 3.—Oliv. 3. no. 42. tab. 2. f. 12.

Fuscous-red, subopaque, thickly and finely punctured, elytra pale testaceous, antennæ long and filiform, posterior angles of the thorax and elytra mucronate-spinose.—Gyll.

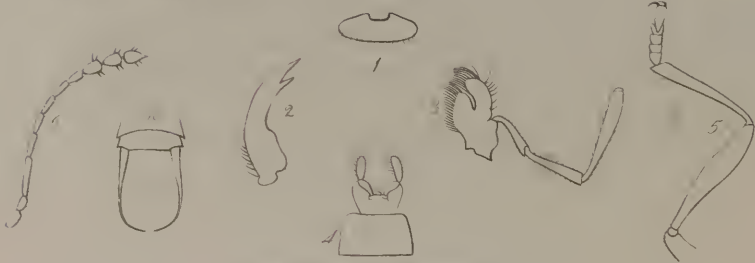
Found in the same situations as the first. I have never seen a British specimen of this insect, yet I think it may be the male of *L. paradoxa*.

3. *L. strumosa* Fab.—Grav.—Gyll. 2. 437. 1.

Fuscous-red, subopaque, elytra and legs testaceous, antennæ long and subtestaceous, posterior angles of thorax and elytra slightly prominent.—Gyll.

This also is in the British Museum. It is the largest of the species, and in Sweden is found everywhere under stones in arid situations in the spring, frequently in company with *Formica rufa*.

The Plant is *Sedum dasyphyllum* (Round-leaved Stonecrop).



DIANOUS CÆRULESCENS.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus Stenus cærulescens Gyll.

DIANOUS *Leach, Samouelle.* *Stenus Lat., Fab., Grav., Gyll. Staphylinus Linn., Fab.*

Antennæ inserted behind the clypeus, between the eyes, subclavate, 11-jointed, pilose at the base and pubescent towards the apex, basal joint thick ovate, 2nd smaller ovate, 3rd long, nearly linear, the 5 following decreasing in length and increasing in thickness, 9th and 10th turbinate, last conic (f. 6).

Labrum transverse, sub-oval, slightly pilose (1).

Mandibles long, transverse, curved, acute, dilated towards the base, with a single tooth on the internal edge near the apex (2).

Maxillæ small, terminated by 2 ciliated lobes, of which the superior one is the longer and more rigid. *Palpi* very long, pilose, 4-jointed, basal joint long clavate, 2nd longer clavate, 3rd nearly as long as the preceding united, terminated by a transparent papillose membrane rather than a 4th joint (3).

Mentum quadrate. *Palpi* short, 2-jointed, the 3rd being obsolete, 2nd oval, pilose. *Lip* not longer than broad, cordate, bilobed (4).

Head large, subtrigonal. Eyes ovate, not very large but prominent.

Neck distinct. Thorax elongate, cylindric-ovate, truncated, narrower than the head. Scutellum very minute. Coleoptera quadrangular, considerably broader than the head, emarginate at the posterior angles.

Wings 2. Abdomen convex, terminated by 2 naked setæ, more distant and incurved in the males (10). Legs rather long and slender.

Tibiæ simple. Tarsi 5-jointed, anterior somewhat dilated in the male, 4th joint slightly bilobed. Claws simple (5, fore leg of male).

CÆRULESCENS *Gyll. Ins. Suec. t. 1. pars 2. p. 463. n. 1.—rugulosus Leach's MSS.*

Cyaneous, punctured, pubescent. Head cyaneous, irregularly punctured, with 2 longitudinal impressions extending from the base of the antennæ nearly to the neck. Eyes black. Thorax cyaneous, coarsely punctured. Elytra covering half the abdomen, coarsely punctured, anterior angles rounded, cyaneous, with a pure ochraceous spot behind the middle. Abdomen cyaneous, inclining to purple, not so deeply punctured as the head, apex in the female ferruginous. Antennæ blackish, 3 terminal joints ferruginous. Palpi and legs blackish with gray pubescence. Tarsi fuscous.

In the Cabinets of Mr. Stephens and the Author.

THE genus *Dianous* was first recorded by Mr. Samouelle in his Useful Compendium; and upon comparing its characters with those of *Stenus*, the following differences will be very evident. The antennæ and 3rd joint of the palpi are less clavate, the lip (or tongue, as it is sometimes called) is not elongated, nor of the same form as in *Stenus*: the setæ of the abdomen are very much longer, the eyes are smaller and more distant, and the mandibles are not serrated on the internal edge as in the genus last named.

Whether our insect is the *Staphylinus biguttatus* of Linnaeus is very doubtful from his vague description, which will apply to several species; it is, however, undoubtedly the *Stenus cœrulescens* of Gyllenhal, which having been published many years, his specific name has been restored. In the native land of that acute and learned Naturalist, this little insect is every where to be found frequenting the shady banks of rivulets. In this country it is very local, and was first discovered by Dr. Leach, who met with it (Mr. Stephens informs me) at Spitchwick and Woodland near Plymouth, and upon the banks of the river near Roslyn Castle, Scotland.

Littorella lacustris (Plaintain Shore-weed), a male plant of which is figured, covers the shores of many of the lakes in Scotland. We gathered it near Tarbet on the banks of Lochlomond, and at Loch Katrine.



STENUS KIRBII.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.**Type of the Genus Stenus Juno Payk.*STENUS *Lat., Fab., Payk., Grav., Panz., Gyll., Leach.*—*Pæderus Oliv.*
Staphylinus Linn., Geoff., Marsh.

Antennæ not very remote, inserted close to the eyes, at the base of the clypeus, clavate, pilose, pubescent towards the apex, 11-jointed, 1st and 2nd joints robust, the former elongated, 4 following slender, the 3rd joint the longest, the 6th and 7th of equal length, the latter more robust clavate, 8th subpyriform, remainder robust, 9th and 10th ovate, terminal joint conical (fig. 6).
Labrum transverse ovate, pilose, slightly emarginate (1).

Mandibles long, bent, acute, having a large tooth on the internal margin, below which they are serrated (2).

Maxillæ broad, bilobed, strongly ciliated, internal lobe the larger, external rather narrow. *Palpi* long 4?-jointed, basal joint very minute, 2nd long slender, 3rd longer, subfusiform, pilose, 4th long robust, pilose, subclavate truncate (3).

Mentum subquadrate coriaceous, carinated in the centre, especially anteriorly (4 a). *Lip* very long, retractile, subcoriaceous, with a dilated membrane extending half its length from the base (b), membranous and dilated at the apex, producing a lobe on each side and 2 small processes from the centre of the anterior margin to which are attached the *Palpi* which are small and compressed 2-jointed, the terminal one being ovate and slightly pilose, the basal one slender, subclavate (c).

Head large subtrigonal. Eyes large, subglobose. Thorax elongate subcylindric, ovate, truncated, narrower than the head. Scutellum very minute. Coleoptera quadrate, scarcely broader than the head, not covering half the body, posterior angles sinuated. Wings shorter than the Abdomen which is long, linear, convex, sometimes margined at others immarginate. Coccæ very short. Thighs subfusiform. Tibiæ and Tarsi slender, the latter 5-jointed, basal and terminal joints the longest, penultimate joint emarginate. Claws simple (5, a fore leg).

KIRBII *Leach's MSS.*

Black shining, shagreened. Head very large, thickly punctured, clothed with short aureous hair. Palpi ochraceous, fuscous at their apex. Antennæ black, paler at the base. Eyes pale cinereous. Thorax much narrower than the head, obovate, the surface uneven. Elytra not broader than the head, short, quadrate, coarsely punctured, with a large ochraceous round spot on each below the middle. Abdomen margined, less coarsely punctured, clothed with aureous pubescence. Legs ochraceous slightly pubescent, apical half of the thighs, base and apex of tibiæ and tarsi, excepting the base of the 1st joint, fuscous. Beneath black, shining, punctured.

In the Cabinets of the British Museum, Mr. Stevens, and the Author.

THIS curious and extensive genus was first established by Latreille, who in his *Histoire Naturelle* has pointed out the differences between it and *Pæderus*. Having given at folio 107 the characters of *Dianous* we shall only make an observation upon the lip, which is as remarkable as any amongst the *Coleoptera*: When the lip (which does not appear to be articulated) is exerted, the maxillæ are so remote that it is deprived of their combined assistance; nature has therefore provided the lip with similar lobes to those of the maxillæ, which are by analogy a second pair of palpi. The appearance of a minute joint in the figure, if correct, will make the maxillary palpi 4-jointed, but we may have been deceived.

The *Steni* are found at all seasons in damp situations, upon moist banks, sides of rivers and ditches, under rejectamenta and stones, upon aquatic plants, &c. Mr. Bainbridge has remarked, that individuals he has thrown upon the water, darted (like *Velia* or *Gerris*) 18 or 20 inches upon the surface.

There are probably 50 British species of this genus, for our own cabinet contains nearly 40 species; but a great portion of them being undescribed, we can only record the following.

A. Elytra with a pale spot on each.

1. *S. biguttatus* Marsh., *Samouelle*, pl. 4. f. 13.—*bimaculatus* Gyll.—Juno Grav.
2. *bipustulatus* Linn., Marsh.—*biguttatus* Fab., Panz. 11. 17.—Don. 16. 573.
3. *bipunctatus* Kirby's Mss.
4. *Kirbii* Leach., Steph., Nob.

B. Elytra immaculate.

I. Abdomen marginated.

* feet pale.

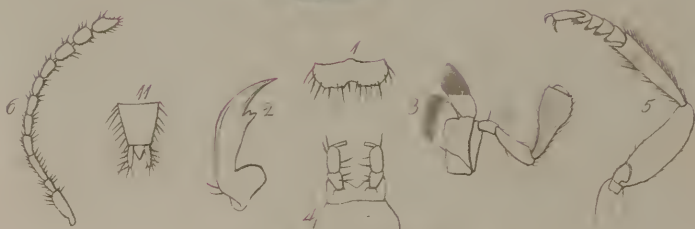
5. *boops* Gr., Gyll.
6. *fuscipes* Gr., Gyll.
7. *circularis* Gr., Gyll.—*immunis* Marsh. var.
** feet black.
8. *Juno* Fab., Payk., Gyll.
9. *binotatus* Gr., Gyll.

II. Abdomen immarginate.

10. *cicindeloides* Gr., Gyll.
11. *clavicornis* Marsh.—*similis* Herbst.—*oculatus* Gr., Gyll.
12. *tarsalis* Gyll.—*clavicornis* Gr.
13. *pallipes* Gr., Gyll.

S. Kirbii inhabits the banks of the Croydon Canal, and may prove to be the male, or a small variety of *S. bipunctatus*; but as this is a MS. species of the learned author whose name our insect bears, should such be the case, it will not disturb the title by which we have the pleasure of distinguishing it.

The plant is *Lysimachia nemorum* (Yellow Pimpernel).



Ant. in 9 P. Jackson Nov. 1. 1825

PÆDERUS FUSCIPES.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus Staphylinus riparius Linn.

PÆDERUS *Fab., Oliv., Payk., Grav., Gyl., Leach.* Staphylinus *Linn., Fab., De Geer, Marsh.*

Antennæ inserted before the eyes, at the base of the mandibles, sub-clavate, pubescent and pilose, 11-jointed, 1st joint rather robust, 2nd short, 3rd as long as the first but more slender, the remainder shorter, insensibly thickening towards the extremity, the 4 last joints being pedicled and the terminal one conic and obliquely truncated (f. 6).

Lubrum transverse, exserted, pilose, narrowed before, and deeply emarginate (1).

Mandibles transverse when at rest, large, curved, acute, dilated in the middle and at the base, with a bifid tooth on the internal edge (2).

Maxillæ with 2 membranaceous lobes, internal one rather large, ciliated, external terminated by a dense and long ciliation. *Palpi* long, 4-jointed, 1st joint small, 2nd long clavate, 3rd very large and hairy, clavate, truncate, 4th short, nearly concealed (3).

Mentum transverse, broadest at the base. *Palpi* 3-jointed, basal joint short clavate, 2nd robust, sub-ovate, 3rd slender, linear truncate. *Lip* broad, emarginate (4).

Head large, sub-ovate. Eyes small. Neck distinct. Thorax obovate. Scutellum minute. Wings 2. Elytra quadrate, not covering half the abdomen, which is convex, the penultimate joint being much longer than the others; terminated by 2 styles in the female (11). Tibiæ simple. Tarsi 5-jointed, anterior dilated in the males, 4th joint bilobed. Claws simple (5, a fore leg).

FUSCIPES *Nobis.*

Shining, pilose. Head smooth, black. *Antennæ* black, ochraceous at their base. Mandibles and palpi ochraceous, the latter black at the apex. Neck and thorax rufous, with a few punctures from which arise strong hairs. Scutellum obscure. Elytra dark green, coarsely punctured, somewhat pubescent. Abdomen rufous, the 2 terminal joints black, sparingly punctured towards the extremity. Coxæ and thighs ochraceous, the latter black at their apex. Tibiæ brown, darkest at the base. Tarsi piceous.

In the Cabinets of Mr. Chant, Mr. Bentley, and the Author.

PÆDERUS is distinguished from the species that form the group named by Dr. Leach *Rugilus* (containing *P. orbicu-*

latus Payk. &c.) by the bilobed penultimate joint of the tarsi, the more robust neck and obtuse apex of the thorax, the styli-form processes to the abdomen of the female, and other less conspicuous differences, which will be explained when we figure that genus.

The pretty group under consideration consists of 5 British species, remarkable for the gaiety and contrast of their colours, all of them partaking more or less of an orange-colour.

1. *Pæderus riparius* Linn.—Don. *Brit. Ins.* v. 5. pl. 167.
2. *littoralis* Grav.
3. *fuscipes* Nobis.
4. *ruficollis* Fab. Panz. *fasc.* 27. pl. 22.
5. *sanguinicollis* (Dahl ?) Steph.

The first of these species appears to be found every where during April and May, upon banks, under stones, and amongst grass.

The second, which is very similar to the former, but has a less globose thorax, and red instead of black mandibles, is not so frequent. It has been found in Norfolk and Devonshire.

The third (a male of which is figured) is much smaller than the two former, very similar to them in colour; but is characterized by fuscous legs and feet (from whence its name). It was discovered in the month of September amongst the lichen which clothes the old white thorn bushes in the New Forest near Brockenhurst, by Mr. Chant and Mr. Bentley, to whom I am obliged for specimens.

The fourth is in Mr. Stephens's cabinet. The thorax alone is rufous.

The fifth species is in the British Museum.

Specimens of the fine and rare plant delineated, *Leucojum æstivum* (Summer Snow-Flake), were gathered last April by Mr. Dale, near Wimborne, Dorsetshire, and communicated to the author.



by C. G. S. & J. S. 1877

RUGILUS FRAGILIS.

ORDER Coleoptera. FAM. Staphylinidæ Lat., Leach.

Type of the Genus *Pæderus orbiculatus* Fab.

RUGILUS Leach's Mss.—*Pæderus* Fab., Oliv., Panz., Grav., Gyll.—*Staphylinus* Marsh.

Antennæ inserted before the eyes at the base of the mandibles, subclavate, pubescent, and pilose, 11-jointed, basal joint the longest, the 3rd scarcely longer than the 2nd; the remainder increasing in diameter to the terminal joint which is subconic (fig. 6).

Labrum very large exserted, transverse ovate, pilose, bidentate in the centre (1).

Mandibles large bent; very acute, producing 4 teeth on the internal side in one and 3 in the other (2).

Maxillæ very broad bilobed, densely ciliated, superior lobe the smaller, inferior one broad. *Palpi* not very long, 4-jointed, basal joint small, 2nd long clavate, 3rd longer and more pilose very robust, subclavate ovate, terminal joint papillæform (3).

Mentum transverse pilose, sinuated at the base, narrowed anteriorly. *Lip* long and broad very hairy at the apex, slightly produced on each side where the palpi are inserted, behind which is a maxillæform process strongly ciliated (4c,*). *Palpi* 3-jointed, 2nd joint rather larger than the 1st, ovate producing a few short bristles, 3rd slender cylindric truncate (4).

Head much larger than the thorax orbicular. Eyes small, lateral.

Thorax attached to the head by a very thin neck, subovate, truncated behind, attenuated anteriorly. Scutellum distinct. Coleoptra quadrate broader than the head, not covering half the abdomen. Wings ample, longer than the Abdomen which is broad, the penultimate joint much longer than the others. Legs long, anterior the most robust. Tibiæ simple. Tarsi 5-jointed, densely pilose beneath, basal joint the longest in the 4 posterior, terminal the longest in the anterior. Claws small (5, a fore leg).

FRAGILIS Grav. Coleop. Microp. p. 140. n. 7.

Black, thorax and legs reddish. Eyes black. Head and labrum pubescent, black, thickly punctured. Antennæ and trophi dull castaneous, the former piceous towards the base. Thorax and neck dull red or pale castaneous, rather thickly punctured, with an obscure channel down the centre. Elytra and scutellum pubescent, rather thickly punctured, piceous, inclining to chesnut at the shoulders, to ochre at the apex. Abdomen black pubescent, very minutely punctured: anterior legs ferruginous red; 4 posterior castaneous-piceous.

In the Cabinet of Mr. Cooper.

WHEN we had the pleasure of giving a figure of a nondescript *Pæderus*, we did not anticipate having it so soon in our power to lay before our readers this fine example of *Rugilus*, being a species at that time unknown in this country.

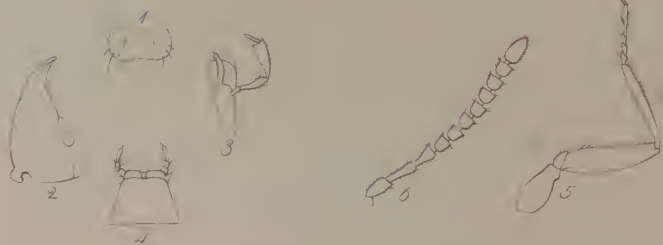
In this curious genus, the trophi are very distinct from any that we have noticed, and from their power and perfection it may be inferred, that the individuals comprised in it are of very rapacious habits: the toothed labrum, the strong mandibles (dentated like those of *Cicindela*) and the process immediately behind the labial palpi, indicating an approach to secondary maxillæ, are amongst the most striking peculiarities.

There are now four species of *Rugilus* in our British cabinets.

1. *R. fragilis* Grav., Nob.
2. *orbiculatus* Fab., Oliv., Panz. 43. 21.
3. *punctipennis* Kirby's Mss.
4. *immunis* Kirby's Mss.?

Gravenhorst has described *R. fragilis* from a solitary example he had seen in the collection of Mons. Bosc at Paris; and the beautiful specimen figured (the only one known in Britain) was discovered last spring, under the bark of a pollard Willow at Walthamstow Ferry, by Abraham Cooper, Esq. The other species are common, and may be found in moist situations, in moss, under stones and amongst rejectamenta.

The plant is *Viola canina* (Dog's Violet).



Cerambyx nivalis Linn. 1758

FALAGRIA THORACICA.

ORDER Coleoptera. FAM. Staphylinidæ.

*Type of the Genus, Staphylinus sulcatus Oliv.*FALAGRIA *Leach, Manner., Curt.*—*Aleochara Grav., Gyl.*—*Staphylinus Oliv.*

Antennæ inserted before the eyes, rather remote, long, clavate, pubescent and 11-jointed, basal joint stout and ovate, 2nd the longest, clavate, 3rd nearly as long as the 1st clavate-truncate, the following somewhat turbinate, increasing in diameter to the apical joint, which is ovate-conic and stouter than the 1st (6).

Labrum transverse, the sides rounded and producing a few bristles, anterior margin nearly straight, a small portion of the middle transparent and ciliated (1).

Mandibles similar, subtrigonal, curved and acute at the apex, the internal margin very thin towards the base (2).

Maxillæ formed of two lobes, one terminated by a rigid and pubescent process, the other broad flat and rounded. *Palpi* 4-jointed, basal joint small, 2nd and 3rd pilose, the former long and clavate, the latter the longest and stoutest, narrowed at the base, 4th shorter than the 2nd and slender (3).

Mentum rather large trigonal, truncated before. *Lip* very short. *Palpi* remote and small, attached to stout scapes at the external angles of the lip, pilose, triarticulate, basal joint obovate, 2nd twice as long, slender and clavate, 3rd a short bristle (4).

Head *suborbicular*: eyes *small and lateral*. Thorax *scarcely larger than the head, somewhat obovate*: scutellum *minute*. Elytra *subquadrate, considerably broader than the thorax, the base not plicated, the angles acuminate*. Wings *ample*. Abdomen *half the length of the insect, narrower than the elytra, slightly dilated before the apex, the sides elevated*. Legs *simple, compressed*: tibiæ *slender*: tarsi *4?-jointed, basal joint long in the posterior pair, 2nd and 3rd minute, 4th long, clavate*: claws *slender and curved* (5, a fore leg).

THORACICA Kirby's MSS.—*Curt. Guide, Gen.* 230.

Black, glossy, clothed with very short pubescence and minutely punctured; head very smooth and shining, with a short channel on the crown: palpi and base of antennæ ochreous: thorax rufous, with a deep channel down the back, terminating in a fovea at the base: elytra thickly and minutely punctured, inclining to castaneous, the hinder margin pale: abdomen rather pilose towards the apex, the edges and sides of the segments sometimes castaneous, especially towards the base. Legs dark ochreous.

In the Author's and other Cabinets.

THE Falagriæ are more allied to the Aleocharæ and less to the Pselaphidæ than might be supposed from their habit and colour: they are distinguished from Autalia, to which they are

most nearly allied, by the form of the thorax, which is somewhat globose-obovate or obcordate, being broadest before; whereas in *Autalia* it is reverse top-shaped, being broad at the base and pointed at the top: in this genus, also, there are, at the base of the elytra, longitudinal channels, which are wanting in our genus.

Although the tarsi appear to be only 4-jointed, I think there may be a suture dividing the long terminal joint.

These little beetles are sometimes met with on the wing in fine weather: and the following are British species:—

1. *F. thoracica* Kirby.—*Curt. Brit. Ent. pl.* 462.

This pretty species was first discovered by Mr. Kirby on the sea shore of Norfolk in August; Mr. Rudd has since taken it under stones on the sea coast at the opening of Castle Eden Dene, Durham; and Mr. Davis captured specimens the 7th of last August, in a sand-pit near Birch Wood, Kent.

2. *F. floralis* Spence, *Ste.*, and 3. *F. nitens* Kirby, *Ste.*, I do not know: the latter is said to have been taken in Norfolk by Mr. J. Hooker.

4. *F. polita* Rudd's MSS.—Smaller and narrower than No. 1: black and very shining, sparingly clothed with short yellowish hairs: palpi lurid; base of antennæ ochreous; thorax with a very deep channel down the back and a transverse row of punctures at the base: scutellum elongated, with a broad channel down the middle; elytra inclining to castaneous behind: legs ferruginous ochre.

Taken by Mr. Rudd.

5. *F. flavipes* Linn.?

Occurring in Suffolk and near Bristol.

6. *F. picea* Grav. *Micr. p.* 75. *n.* 11.

Found near Bristol and in Devonshire.

7. *F. nigra* Grav. *Micr.* 75. 12.

From Suffolk and near Bristol.

8. *F. obscura* Grav. *Micr.* 74. 10.—*Obs.* There is a fovea at the back part of the head not noticed by authors.

Found under stones in sunny places, early in the spring, in Battersea Fields, Norfolk, Suffolk, &c.

9. *F. confinis* Kirby, *Ste.*

Taken in Norfolk and Suffolk.

10. *F. sulcata* Grav. *Mon. p.* 151. 7.

At the roots of grass, on banks, in meadows, in April and May, Battersea Fields.

11. *F. sulcata* Payk. *Oliv. 3. No.* 42. *pl.* 6. *f.* 52.—*Grav. Micr.* 73. 9.

Taken near London, in Norfolk, Suffolk, and Devonshire.

The Plant is *Galanthus nivalis* (The Snowdrop), communicated by J. C. Dale, Esq.



ARCOPAGUS PUNCTICOLLIS.

ORDER Coleoptera. FAM. Pselaphidæ.

Type of the Genus, Pselaphus bulbifer Reich.

ARCOPAGUS Lea., Den., Curt.—Pselaphus Reich., Panz.

Antennæ inserted on each side the head before the eyes, straight, as long as the thorax, hairy and 11-jointed, basal joint very robust, dilated and acuminate on the internal angle in the males (6 ♂), long stout and subovate in the females, 2nd joint much larger than the 7 following, subglobose and acuminate internally in the males, ovate in the females, 3rd obovate, five following moniliform, 9th larger transverse, 10th as large as the 2nd, somewhat cup-shaped, 11th very large and conical (6 ♀).

Labrum subtrigonal, anterior angles rounded and producing a few bristles, with 2 minute tubercles in the centre (1).

Mandibles subtrigonal, acute, rounded externally, with 2 small teeth beneath the apex (2).

Maxillæ minute, base suborbicular, terminated by 2 lobes ciliated with bristles, the superior one the longest. *Palpi* very long and large, 4-jointed, basal joint minute, 2nd very long clavate, 3rd short oblong, 4th as long as the 2nd very large, ovate-securiform, very narrow at the base and pubescent (3).

Mentum subquadrate, the angles rounded. *Palpi* arising near the centre of the anterior margin, biarticulate, basal joint linear and the longest with a bristle at the apex, 2nd forming a claw.

Labium divided into 2 rounded divaricating lobes with a few hairs on the inside (4).

Head long and narrowed before, broad at the base. Eyes small lateral and remote. Thorax subglobose-ovate, truncated at the base. Scutellum very minute. Wings none. Elytra semi-oval, twice as broad as the thorax and covering two thirds of the Abdomen which is ovate-conic. Thighs a little thickened. Tibiæ rather longer, slender at the base and attenuated towards the apex, anterior notched internally in the males (5 ♂). Tarsi triarticulate, basal joint minute, 2nd long and rather stout, 3rd a little shorter and more slender, terminated by a single Claw (5 ♀, fore leg).

PUNCTICOLLIS Denny's Mon. p. 26. 3.—Curt. Guide, Gen. 234. 3.

Ferruginous shining, coarsely but rather sparingly punctured: head elongated and produced considerably beyond the eyes, which are black, and between them are 2 foveæ. Thorax much broader than the head, narrowed at the base, with an obscure transverse line terminating in a fovea at each angle. Elytra piceous, very coarsely punctured, with a few depressed hairs, a channel on each side the suture and an excavation near each shoulder. Abdomen finely punctured. Thighs very thick in the males.

In the Author's and other Cabinets.

THE Pselaphidæ are supposed to feed upon Acari which they find amongst moss. To this family the Arcopagi belong, and are very nearly related to the Bythini, from which they have been principally distinguished by the comparative smallness of the 2nd joint of the antennæ, as well as by their shorter maxillary palpi: and I find on examination, that the sexual notch of the anterior tibiæ, first pointed out to me by Mr. Davis in *A. puncticollis*, is characteristic of the genus.

I consider the sex with angulated basal joints to the antennæ and notched tibiæ to be the male; but Mr. Denny gives the first as indicative of the female in his generic character, p. 24; yet the references to the figures in his pl. 5. are opposed to that opinion.

Four British species are recorded by Mr. Denny.

1. *A. bulbifer* Reich. tab. 1. f. 6.—Den. pl. 5. f. 1.

Length $\frac{5}{8}$ ths of a line. Pitchy-black, shining, slightly pubescent; palpi ochraceous; antennæ and legs dull castaneous; tibiæ and tarsi somewhat ochreous; thorax obovate-globose; elytra sparingly but strongly punctured.

Found in moss in woods and on marshes towards the latter end of the year abundantly in Norfolk, by Mr. Denny and myself; Humby and Norton, Lincolnshire, from December to April, Mr. Davis; Newcastle, Mr. Wailes.

2. *A. clavicornis* Panz. 99. 3.—Reich. t. 1. f. 7.—Den. pl. 5. f. 2.

Length nearly a line. Dark chestnut. Palpi pale ferruginous; thorax rather large globose, a little narrowed behind, punctured at the base, with an impressed line: elytra thickly punctured and pilose; legs testaceous, tarsi yellowish, thighs clavate.

Among moss about Crwmllyn Burrows near Swansea, Mr. Dillwyn; and at Falmouth, in sandy situations, I believe in May.

3. *A. puncticollis* Den.—Curt. Brit. Ent. pl. 422,—a beautiful variety of the male.

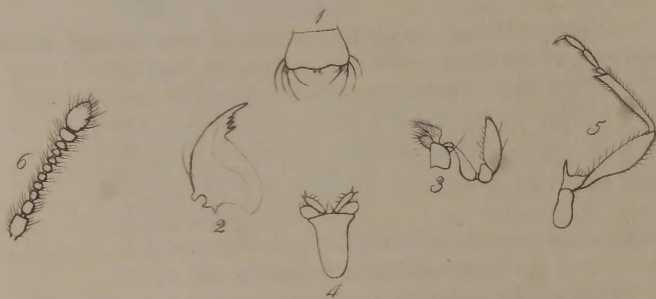
In moss and damp situations at Horning, Norfolk, Mr. Denny; abundantly in moss from Humby, in the winter, Mr. Davis; also at Hertford, Newcastle, and Netley in Shropshire.

4. *A. glabricollis* Reich. t. 1. f. 8.—Den. pl. 5. f. 4.

Length $\frac{5}{8}$ ths of a line. Piceous black or dull castaneous, shining. Palpi ochreous: antennæ and legs of the same colour or dull castaneous; thorax obovate-globose, shining, with an obscure line at the base. Elytra darker, slightly pubescent, coarsely and sparingly punctured.

Not uncommon in Norfolk, near London, and Bristol in the spring, and at Humby.

The Plant is *Caucalis nodosa* (Knotted Hen's-foot).



Painted by J. Curtis July 1. 1830

BRYAXIS SULCICOLLIS.

ORDER Coleoptera. FAM. Pselaphidæ Leach.—Dimera Lat.

Type of the Genus, Staphylinus sanguineus Linn.

BRYAXIS Knoch., Leach, Denny.—Pselaphus Reich., Panz., Gyll.

Antennæ inserted on each side the nasus, straight and nearly as long or longer than the thorax, very pilose, 11-jointed, basal joint robust ovate, considerably larger than the 7 following, which are either globose or oblong, the remainder forming a triarticulate club, the 9th joint sometimes not larger than the 2nd, the 10th large, transverse, 11th the largest, ovate-conic (6).

Labrum pocket-shaped, producing two small teeth in the centre, angles rounded, furnished with a few long curved bristles (1).

Mandibles broad at the base, and curved to the apex, which is very acute, with 3 teeth below on the inside, the internal margin very thin (2).

Maxillæ small, lower portion horny, quadrant-shaped, terminated by two pilose lobes, the lower one the smallest, subovate, the other maxillæform. *Palpi* large and porrected, long, 4-jointed, basal joint very slender and minute, 2nd very long robust and clavate at the apex, 3rd robust subglobose, 4th very large, elongate-conic and pilose (3).

Mentum elongate-ovate, truncated and dilated at the anterior margin, from the centre of which arise the *Palpi*, they divaricate and are probably triarticulate, the basal joint being very obscure, 2nd long with a short bristle at the apex, 3rd like a short spine.

Labium composed of 2 remote, membranous rounded lobes, extending beyond the sides of the mentum (4).

Head ovate-trigonal. Eyes rather small, lateral, and remote. Thorax obovate, truncated at the base. Scutellum minute. Wings, at least twice as long as the insect and without nervures, excepting 2 or 3 short ones at the base; thickly punctured or pubescent, the inferior edge ciliated with long hairs. Elytra semioval, twice as broad as the thorax, but not covering more than half the Abdomen, which is convex, with the 2nd joint very large. Legs rather long, the anterior coxæ sometimes mucronated. Tibiæ, middle and hinder pair sometimes curved, the former in some furnished with a large spine. Tarsi slender, posterior the longest, triarticulate, basal joint minute, 2nd and 3rd of equal length, the latter producing one Claw (5, a fore leg).

SULCICOLLIS Reich. Mon. p. 62.

Castaneous, shining, sparingly punctured and clothed with ochreous pubescence. *Antennæ* as long as the thorax, very pilose, none of the joints elongated (fig. 6). Head subtrigonal, with a fovea on each side the crown, connected by a deep arched furrow. Eyes small and black. Thorax obovate, truncated behind, a deep groove down the centre, intersected towards the base by a curved channel, terminated on each side by a deep fovea. Elytra with the posterior angles notched and acuminate, an incurved longitudinal line on each side the suture, and an abbreviated one at the shoulder, forming a large and deep elongated fovea. Legs slightly obscure at the knees.

REICHENBACH I believe was the first author who ever gave figures of the trophi of the Pselaphidæ, and they were taken from a Bryaxis; but since that short period such progress has been made in the physiological departments of Entomology, that any one who has the power to investigate insects, is able to understand their structure much more correctly now than formerly. From the dissections now given there can no longer be any doubt I think of the near relationship of the Pselaphidæ and Staphylinidæ, although the former are trimerous.

These little beetles were scarcely known by Linnæus and Fabricius, but the researches of later naturalists have increased their numbers sufficiently to warrant their becoming a family. Dr. Reichenbach's excellent Monograph led the way to an investigation of our British species by Dr. Leach, and afterwards to an elegant and valuable little volume by Mr. Henry Denny, in which all the indigenous species at that time known were figured and described. Two Bryaxes have been since discovered, and through the politeness of T. C. Heysham, Esq. I have the pleasure of representing one, and adding descriptions of both species.

1. *B. sulcicollis* Reich.—Curtis's *B. E.* pl. 315.—Dresdensis Ill., Payk., Fab.

"Taken off the city walls (of Carlisle) contiguous to the deanery, on the 3rd of September," by Mr. Heysham.

2. *B. Juncorum* Leach.—Den. p. 40. pl. 8. f. 3.—In June, at Costessey, Norfolk; in moss, amongst rushes, and at the foot of trees at Battersea; in Devon, &c.

3. *B. hæmaticus* Reich.—Lea.—Den. 39. pl. 8. f. 2.—Beginning of September under stones Isle of Wight, and moss in woods near Ashburton, Devon.

4. *B. fossulatus* Reich.—Lea.—Den. 37. pl. 8. f. 1.—In May Copenhagen fields, sandy places Bexley, and moss on the stumps of trees, Norfolk; in moss in the winter at Southgate, Mr. F. Walker.

5. *B. assimilis* Heysh. MSS.—insignis var.? Reich. p. 60. pl. 2. f. 16.—Scarcely so large as *B. Juncorum*. Black, shining, very minutely punctured, clothed with short ochreous pubescence. Antennæ as long as the thorax, very pilose and inclining to castaneous. Trophi testaceous. Head with 2 foveæ on the crown and another between the antennæ. Thorax a little broader than the head, a large fovea in the centre at the base, and one on each side. Elytra rusty ochre, with an arcuated stria on each side the suture. Abdomen shorter than the elytra; legs testaceous, the tips of the thighs and centre of the tibiæ darker. Taken by Mr. Heysham "under rejectamenta on the banks of the river Eden, not far from Ambrose Holme, the 22nd of October 1829."

6. *B. impressus* Reich.—Lea.—Den. 36. pl. 7. f. 4.—In "moss on marshes, and at the stumps of trees, in damp woods," Norfolk.

7. *B. sanguineus* Linn.—Reich.—Den. 34. pl. 7. f. 3.—mucronatus Panz. 89. 11.—April and summer, moss in damp woods, Norfolk; roots of grass on sloping banks, Battersea fields; July, in a marsh near Southgate, Mr. Walker.

8. *B. longicornis* Leach.—Den. 32. pl. 7. f. 2.—Taken with the preceding species.

9. *B. nigri ventris* Den. 41. pl. 7. f. 1.—I took a specimen on a felled tree in the New Forest; Mr. Kirby has taken it near Barham, and Mr. Hope at Shrewsbury.

Splachnum ampullaceum (Bottle-shaped Glandmoss) accompanies the insect.

13.

4